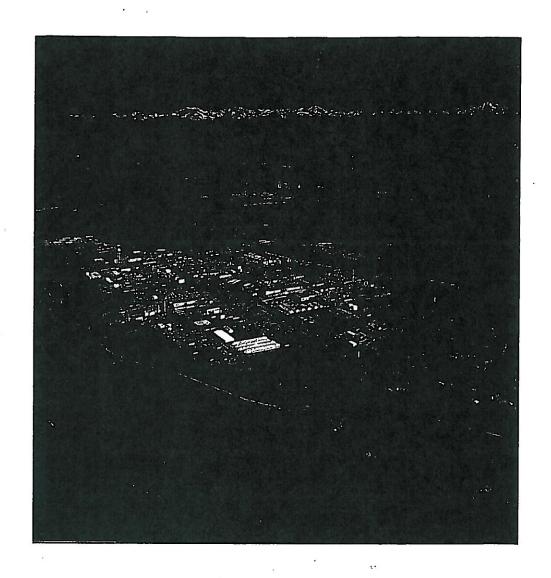
NOTICE

All drawings located at the end of the document.



RECONNAISSANCE-LEVEL CHARACTERIZATION REPORT FOR TRAILER T112A AND TRAILER T112C



Revision 1

Reviewed for Classification/UCNI /ouo By: Janet Nesheim, Derivative Classifier

DOE, EMCBC
Date: 1074-08
Confirmed Unclassified, Not UCNI / Out

September 30, 1999

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RECONNAISSANCE-LEVEL CHARACTERIZATION REPORT FOR TRAILER T112A AND TRAILER T112C

Revision 1

September 30, 1999

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September 30, 1999

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ABBREVIATIONS/ACRONYMS

ACM Asbestos containing material ASD Analytical Services Division

Be Beryllium

CBDPP Chronic Beryllium Disease Prevention Program

DCGL_{EMC} Derived Concentration Guideline Level – elevated measurement

comparison

DCGL_W Derived Concentration Guideline Level – Wilcoxon Rank Sum Test

D&D Decontamination and decommissioning

DDCP Decontamination and Decommissioning Characterization Protocol

DOE U.S. Department of Energy
DPP Decommissioning Program Plan

DQA Data quality assessment DQOs Data quality objectives

EPA U.S. Environmental Protection Agency FDPM Facility Disposition Program Manual

K-H Kaiser-Hill

LBP Lead-based paint LLW Low-level waste

LSDW Life safety disaster warning

MARSSIM Multi-Agency Radiation Survey and Site Investigation Manual

MDA Minimum detectable activity

MDC Minimum detectable concentration

NRA · Non-Rad-Added Verification

OSHA Occupational Safety and Health Administration

Pb Lead

PARCC Precision, accuracy, representativeness, comparability and

completeness

PCBs Polychlorinated biphenyls PDS Pre-Demolition Survey

RCRA Resource Conservation and Recovery Act

RFCA Rocky Flats Cleanup Agreement

RFETS Rocky Flats Environmental Technology Site RLC Reconnaissance Level Characterization

RLCR Reconnaissance Level Characterization Report

SVOCs Semi-volatile organic compounds

TRU Transuranic

TSCA Toxic Substances Control Act
TSO Transportation Security Office
VOCs Volatile organic compounds

EXECUTIVE SUMMARY

A Reconnaissance Level Characterization (RLC) was performed to free-release trailer 112C and dispose of trailer 112A as waste. This RLC implements the Pre-Demolition (final status) survey design based upon the Multi-Agency Radiation Survey and Site Investigation Manual (NUREG-1575). Physical, chemical and radiological hazards were assessed based on historical reviews, process knowledge (Appendix 1), and newly acquired RLC data (Appendices 2-4). Results indicate no radioactive or chemical contamination exists and no significant physical hazards are present. Trailer 112A contains asbestos as part of the floor tile, which is considered an integral part of the structure. Based on the assessment, the trailers are confirmed to be Type I facilities and can either be free-released to commerce (i.e., for sale and re-use), or disposed of as waste.

1.0 INTRODUCTION

As part of the Rocky Flats Environmental Technology Site (RFETS) Closure Project, numerous buildings and structures will be removed. Among these are the trailers T112A and T112C, which are currently located in the Property Use and Disposition Yard near Building 280. These trailers no longer support the RFETS mission, and need to be removed to reduce Site infrastructure, risks and operating costs.

Before the trailers can be released, hazards must first be identified. Hazards identified will be used to plan final disposition. This document presents the existing physical, radiological and chemical hazards associated with the two trailers, and classifies the facilities pursuant to the RFETS Decommissioning Program Plan (DPP, K-H, 1998a). The hazards assessment is based on facility/process knowledge, operating and spill records, historical radiological and chemical data, and results of the RLC conducted. The RLC was conducted pursuant to the RFETS Decontamination and Decommissioning Characterization Protocol (DDCP). The content and outline of this report are consistent with the Kaiser-Hill (K-H) Facility Disposition Program Manual (FDPM, K-H, 1998b).

1.1 Purpose

The purpose of this report is to communicate and document the results of the RLC effort. The purpose includes both summarizing the data into concise, usable formats and interpreting the data for use in management decisions, primarily:

- Definition of individual hazards and overall risk associated with facility D&D;
- Typing of trailers based on hazards identified; and
- Ability to either free-release the trailers from the site, or dispose of them as waste.

1.2 Scope

This report covers physical, radiological and chemical characterization of T112A and T112C. Chemical characterization was conducted using Colorado Hazardous Waste Management regulations as a means to segregate materials as either hazardous or non-hazardous waste. Based on the hazards identified, the trailers were typed and assessed against free-release criteria.

2.0 OPERATING HISTORY AND PHYSICAL DESCRIPTION

2.1 Trailer 112A

This trailer was constructed/assembled at Central Avenue and Fourth Street, behind the northwest corner of Building 112, in the early1960s. The size of this trailer is approximately 45' X 60' X 10', and it is assembled from 5 trailer units of approximately 12' X 45' feet in size. There are four doors leading into this trailer. The siding is enamel on aluminum. Structurally the trailer is sound; there are no leaks in the ceiling, and the outside is not damaged. The interior "outside" walls are wood paneling over insulation, the interior partition wall is wood paneling on stud framing, and the floor is carpet and sheet vinyl/linoleum on wood. The ceiling is a drop type with acoustical tile panels. The trailer has men and women restroom facilities. The men's restroom has a hot water heater for the facility. The trailer also has five electric heat pumps for heating and air conditioning. T-112A has a smoke detection system and was connected to the Plant fire alarm and life safety and disaster warning (LSDW) systems. No other equipment remains in the trailer.

On July 21, 1999, the trailer was separated into five separate units and transported to the site Property Utilization and Disposition yard near Bldg. 280. The units were positioned in their original configuration, with approximately 6 inches of separation between units. Some debris was removed.

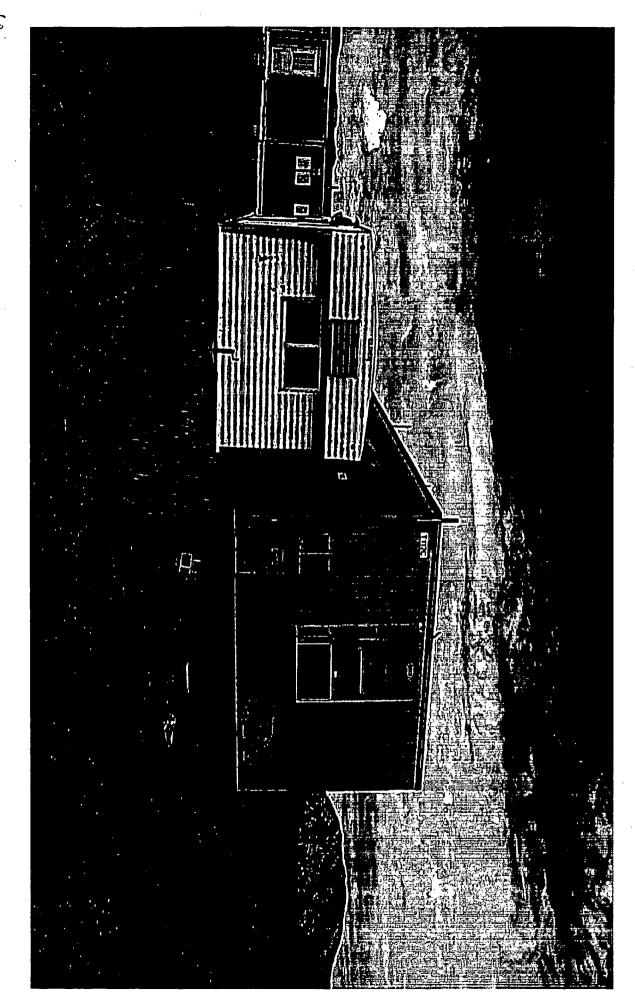
Prior to the Radio and Page Operations moving into T-112A, the south half of the trailer was used as a telecommunications office. The RFETS Traffic Department originally occupied the north section of T-112A. The south half of T-112A was a Company Store when the RFETS was managed and operated by Rockwell International (from approximately 1975 to 1990). Later the north section of T-112A was used by RFETS Transportation Security Office (TSO) Scheduling. Both the telecommunications and TSO groups vacated this trailer in March 1999. The trailer has remained unoccupied.

2.2 **Trailer 112C**

This trailer was brought onsite and placed at Central Avenue and Fourth Street in 1991. The size of this trailer is 14' - 0" X 60' - 3" X 13' - 10" at the roof edge. There are two doors leading into this trailer. The siding is enamel baked on aluminum. Structurally the outside has a panel that has been torn loose and part of it has blown away; inside, the condition is good. The interior "outside" walls are vinyl over 4' x 8' dry wall over insulation, the interior "partition" walls are the same materials on stud framing. The ceiling is a drop type with 2' x 4' acoustical tile panels and the floor is carpet over wood flooring. The trailer has an electric heat pump for heating and cooling and a fire sprinkler system, and it was connected to the Plant fire alarm and LSDW systems.

This trailer has been used as office space since it has been on site. There are six hard-walled rooms, of which five are offices. The sixth contains the telecommunication equipment and the fire sprinkler controls. The last occupant was Wackenhut Services which, used it as a scheduling office. They moved out in 1998. The trailer was moved to the site Property Utilization and Disposition Yard near Bldg. 280 on July 21, 1999. The trailer has remained unoccupied. Refer to Exhibit 2-1 for an exterior photograph of the trailers.

Exhibit 2-1 Exterior Photograph



3.0 SUMMARY OF CHARACTERIZATION ACTIVITIES

An RLC was designed to demonstrate that DOE-added radioactive materials are not present or have been removed from RFETS facilities to the extent that residual levels of contamination are below the Derived Concentration Guideline Levels (DCGLs) and that the trailers can either be free-released or disposed of as waste. This section of the RLC Report (RLCR) presents DQOs used, historical data, and additional RLC data needed to release the trailers. The section also describes the survey area and survey unit for the trailers, and defines the methods that were implemented in collecting radiological surveys, scans and samples. The survey followed the guidance provided in NUREG-1575, the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM).

3.1 Data Quality Objectives

The following section outlines the DQO process used in designing the RLC Package.

The Problem

The problem involves quantifying the amount of material, media, equipment, floors, walls and ceilings, interior/exterior to the buildings and determining the extent of radiological and non-radiological contamination so that remaining floors, walls and ceilings can be free-released (i.e., no chemical and radiological hazards remain).

The Decision

The decision is verification that free-release and waste management standards have been met.

Inputs to the Decision

The input to the decision includes data from preceding characterizations, including historical data and process knowledge; data collected from this pre-demolition survey; and applicable action levels, free-release criteria, transportation requirements, waste management regulations, pollution prevention/waste minimization criteria, and waste acceptance criteria.

Decision Boundaries

The decision boundaries include the floors, walls, ceilings, roof and fixed equipment located in T112A and T112C.

Decision Rules

This section develops the rules to support the decisions regarding characterization data.

Radionuclides

- If process knowledge/history supports the premise that no radioactive contamination is present, and a pre-demolition survey has been performed and approved, the related area and/or volume is considered sanitary waste or may be free-released.
- If all radiological survey measurements are below the surface contamination thresholds provided in DOE Order 5400.5 (Radiation Protection of the Public and Environment) and/or are within background concentrations for volume contamination material (refer to Radiological Safety Practices 09.03, "Unrestricted Release of Build or Volume Material"), the related area or volume of material is considered sanitary waste or may be free-released.
- If all radiological sample measurements are below the volume contamination thresholds provided in the No-Rad-Added Verification (NRA) Program, the related volume of material is considered sanitary waste or may be free-released.
- If any radiological sample measurement exceeds the volume contamination threshold provided in the NRA Program, the associated volume must be remediated or disposed of as radiological or mixed waste.
- If any radiological survey measurement exceeds the surface contamination thresholds provided in the RFETS Radiological Control Manual, the associated surface area must remediated or disposed of as radiological or mixed waste.
- If any radiological sample measurement (or disposal unit volume) exceeds 100 nanocuries per gram of transuranic material, the associated volume must be disposed of as transuranic (TRU) waste.

RCRA Constituents

If the waste is mixed with or contains a listed hazardous waste, or if the waste exhibits a characteristic of a hazardous waste, then the waste is considered RCRA-regulated hazardous waste in accordance with 6 CCR 1007-3, Part 261. If the waste is free from listed hazardous waste, and does not exhibit a characteristic of a hazardous waste, the waste is considered non-hazardous.

CERCLA Hazardous Substances

If the waste contains a listed hazardous substance above the CERCLA reportable quantity (40 CFR 302.40), notify the receiving disposal facility of the hazardous substance and estimated quantity prior to shipment.



Beryllium

If detectable beryllium contamination can be shown through process knowledge to consist of beryllium powder (P015 under RCRA), then the contaminated materials will be treated as RCRA waste and subject to treatment standards under 40 CFR 268.40.

If concentrations of beryllium are equal to or greater than 0.2 ug/100 cm², the material is considered beryllium contaminated per the Occupational Safety and Industrial Hygiene Program Manual, Chapter 28, Chronic Beryllium Disease Prevention Program (CBDPP). If the concentrations are below 0.2 ug/100 cm², the material is considered non-beryllium contaminated.

Polychlorinated Biphenyls (PCBs)

- If material meets the definition of "Bulk Product Waste," it may be disposed of as
 Toxic Substances Control Act (TSCA) waste at a permitted solid waste disposal
 facility without further characterization (Federal Register, Vol. 63, No. 124, June 29,
 1998,40 CFR §761.62,). If the disposal facility does not possess a commercial PCB
 storage or disposal approval, the generator must provide written notification to the
 facility in accordance with §762.62.
- If material meeting the definition of Bulk Product Waste is to be free-released (e.g., recycled), the 95% upper confidence limit of the mean value of a representative sample set cannot exceed 50 ppm. This determination can be made through process knowledge or laboratory analysis.
- If material meets the definition of PCB remediation waste (i.e., potentially containing PCBs form historical releases; §761.61), the free-release concentration is ≤1 ppm PCBs, as determined in accordance with requirements of §761.61, Subpart G. Higher release levels for PCB remediation wastes are permissible, but carry specific restrictions on disposition of the material.

Asbestos

In accordance with 40 CFR 763 and 5 CCR 1001-10, if any one sample of a sample set representing a homogeneous medium results in a positive detection (i.e., >1% by volume), then material is considered Asbestos Containing Material (ACM); otherwise the material is considered non-ACM.

Tolerable Limits on Decision Error

The maximum value for false positive and false negative errors is 5% when calculating the number of samples required.



Optimization of Plan Design

Radiological characterization was conducted on interior floors, walls and ceilings, and exterior walls and roofs as necessary. The following criteria were used to develop the radiological survey/sampling characterization package:

- Radiological field measurement methods and instrumentation are described in Section 6 of MARSSIM.
- Radiological sampling and preparation for laboratory measurements are described in Section 7 of MARSSIM.
- For materials, media, equipment, floors, walls, and ceilings being released as low level and/or TRU waste, radiological surveys/samples are taken per Site Procedure 1-PRO-079-WGI-001, Waste Characterization, Generation and Packaging.
- If radiological survey/samples are required for materials, media and equipment for release as non-radioactive waste, then radiological surveying and sampling are conducted per the requirement in the RFETS HSP 18.10, Radioactive Material Transfer and Unrestricted Release of Property and Waste.
- If RCRA, TSCA or asbestos surveys/samples are required for materials, media, equipment, floors, walls and ceilings, Sampling and Analysis Plans are required per Section 6.0 of the D&D Characterization Protocol.

3.2 Radiological Characterization

Radiological characterization was performed to understand the nature and extent of radioactive materials that may be present in Trailers 112A and 112C. This section reviews the historical radiological data on these Trailers and discusses the RLC conducted. Radiological hazards and RLC data are discussed in Section 4.2, and RLC radiological data are presented in Appendices 2-4.

3.2.1 Summary of Historical Data

Historically, radiological surveys for T112A and T112C may have been performed, but the data are not readily available. There are no Plant Action Tracking System items outstanding on these trailers, which indicates no associated radiological program deficiencies. Trailers T112A and T112C are individually listed in I-P73-HSP-18.10, Radioactive Material Transfer And Unrestricted Release Of Property And Waste, Appendix 4, Unrestricted Release Building/Facility List. This listing authorizes the unrestricted release of administrative, non-hazardous property located in the trailers without radiological surveys or Radiological Safety signature for off-site shipment or transfer to PU&D, and is indicative of structures with a low probability of radioactive contamination. These assumptions do not directly apply to the trailer structures themselves, but does illustrate an area with a very low probability for radioactive contamination.



3.2.2 Summary of RLC Data Collected

Although historical review indicates no use of DOE radioactive material, insufficient quantitative radiological data exist to designate Trailers T112A and T112C as non-impacted pursuant to MARSSIM. Therefore, radiological surveys and scans were performed, and radioactive samples were taken and analyzed. Direct radiological surveys and scans were performed on the interior and exterior of both trailers for removable and total, alpha and beta contamination. Four radiological samples were taken from the roof of T112 A. The interior of T112A was designated as Survey Unit A, the exterior of T112A was designated as Survey Unit D, and the interior and exterior of T112C was designated as Survey Unit C.

3.2.3 Sampling and Field Measurement Methods, Procedures and Equipment

Total alpha and beta survey measurements were taken with the NE Electra using a DP-6 probe, and removable alpha and beta measurements were taken with the Eberline SAC-4 and BC-4, respectively. Radiological scans for total alpha and beta were taken with the NE Electra at a scan rate of 1.5 inches per second. Samples were screened on-site for alpha activity with the AP-2 and sent off-site for radiochemical analysis (alpha spectrometry). Radiological surveys, scans and samples were taken per the requirements of the *RFETS Radiological and Non-Radiological Trailer 112A-C Characterization Package, Revision 0* dated August, 1999 (refer to Appendix 5). All radiological samples were taken in accordance with Analytical Services Division (ASD) requirements.

A total of 64 measurements were taken within each survey unit. Each measurement and duplicate location was measured for total alpha, total beta, removable alpha, and removable beta). Twenty duplicate measurements were taken as well. The number of total surface and removable alpha measurements for floors, walls, ceilings, roofs, and fixed equipment were calculated based on MARSSIM statistical calculations. In addition, alpha scans of 10% of the total survey unit surface area were performed at biased (judgmental) locations on accessible surfaces. The scans were biased relative to those locations with the greatest potential for radioactive contamination based upon routine use of the trailer (i.e., "foot traffic"), and potential for exterior contamination (i.e., airborne fallout). The scan data were recorded as selected maximum values over the entire scan area of interest for the survey unit.

The appropriate number of survey points was calculated, and specific survey locations were selected using a random number generator. The actual measurements were taken at each grid intersection. If grid intersections (nodes) were inaccessible, the measurement was obtained as close as possible to the grid intersection, and the new location was annotated on the survey map.

Measurement locations were clearly identified by labels to provide a method of referencing survey results to survey measurement locations. These measurement locations were incorporated into a grid map at survey densities of 1 meter square.



Numerical results of this activity as well as statistical data analyses are detailed in the Appendices for each survey unit.

3.2.4 Laboratory Analysis

Radiological samples were analyzed per the requirements of the Final Sampling and Analysis Plan for Roofing Material from Trailers 112A and 112B for isotopic analysis dated July 21, 1999 (refer to Appendix 6). All radiological samples were analyzed in accordance with APO requirements.

Samples were managed to ensure an accurate record of sample collection, transport, analysis, and disposal. This management ensures that samples are neither lost nor tampered with and that the samples analyzed are traceable to a specific location in the field. Chain-of-custody documentation captures this process for all samples submitted for laboratory analysis. The chain-of-custody forms are included as part of survey documentation in Appendix 3 (Survey Unit D).

All samples collected for RFETS laboratories or approved contracted laboratories were analyzed via a Site-approved method. Individuals trained to use appropriate equipment and procedures performed the analyses. The laboratories selected have sufficient analytical capabilities for the radionuclides of interest (plutonium, americium, and uranium) and an established quality assurance/quality control program that assures the validity of the analytical results. The laboratory analytical methods used are capable of measuring levels at or below 50% of the established release criteria. All results state the detection limit for the analysis. Results are detailed in the Appendices for each individual survey unit.

3.3 Chemical Characterization

Chemical characterization was performed to determine the nature and extent of chemical contamination that may be present in Trailers 112A and C. Characterization was based on a review of historical and process knowledge and is presented in this section. Related hazards are discussed in Section 4.3.

3.3.1 Summary of Historical Data

Information on contaminants of concern (i.e., asbestos, beryllium, RCRA constituents, lead in paint, and PCBs) is presented below.

Asbestos: Historical asbestos inspection data exist for T112A. Thirteen samples of floor tiles, wall, and ceiling material were taken in T112A, and of these, four floor tile samples were determined to be asbestos-containing.

T112C underwent asbestos inspection in 1994, and nine samples of resin, paint, and plaster were taken. None were found to be asbestos-containing.



Beryllium: There is no record of beryllium operations or storage being conducted in the two trailers (*D&D Facility Characterization Interview Checklist, Facility Checklist, HRR Manager's Report,* and *List of Known Beryllium Areas*).

The CBDPP conducted an independent beryllium survey of T112A, which confirmed the absence of detectable beryllium contamination. Beryllium smears were collected at five locations in T112A. All results were below the detection limit of 0.1 μ g/100 cm². The action level for beryllium surface contamination is 0.2 μ g/100 cm². In light of the known history of the trailers, the CBDPP assumes that these results were representative of both trailers. No additional sampling for beryllium was conducted.

RCRA/CERCLA Constituents (including metals and VOCs/SVOCs): According to historical and process knowledge, no chemicals were used or stored in any of the two trailers (*D&D Facility Characterization Interview Checklist and Attached Facility Checklist and HRR Manager's Report*). Therefore, sampling for chemical contaminants is unnecessary and was not conducted.

Lead in paint: Paint on the interior and exterior surfaces of the trailers and wooden stairs and platforms was not characterized for Pb in paint. Environmental Waste Compliance Guidance #27, Lead-based Paint (LBP) and Lead-based Paint Debris Disposal, has directed that LBP debris generated outside of high contamination areas shall be managed as non-hazardous (solid) wastes and need not be sampled unless the potentially lead-containing component is to be scabbled or otherwise comprise a separate waste stream. Therefore, analysis for lead in paint was not required.

Polychlorinated Biphenyls: A high voltage electrical power transformer is mounted on a concrete pad outside the southwest corner of T112A, and is labelled "No PCBs." There is no record of PCB product use or storage in either of the trailers (*D&D Facility Characterization Interview Checklist, Facility Checklist: and HRR Manager's Report*). Therefore, analysis for PCBs within the trailers is unnecessary and was not conducted.

Environmental Waste Compliance Guidance #25, Management of Polychlorinated Biphenyls (PCBs) in Paint and Other Bulk Product Waste During Facility Disposition, has directed that applied dried paints, varnishes, waxes, or other similar coatings or sealants are acceptable for disposal (with notification) in a non-hazardous solid waste landfill as PCB Bulk Product Waste under 40 CFR 761.3 and 40 CFR 761.62 paragraph (b) and therefore need not be sampled as long as restrictions outlined in 40 CFR 761.62 regarding their disposition are met.

The exterior surfaces of the trailers are painted tan. The interior surfaces of each trailer are covered with paneling. Historical data and process knowledge give no reason to suspect that any specialized paints or coatings associated with PCBs were applied to the trailers. Therefore, the trailers were not characterized for PCBs in paint.

Fluorescent light ballasts were inspected by a site electrician. Several PCB-containing ballasts were discovered in T112A, two of which showed evidence of minor internal



leakage within the lighting unit, above the faceplate. None were discovered in T112C. All PCB-containing ballasts were removed. No further characterization was required.

3.3.2 Summary of RLC Data Collected

An asbestos inspection was conducted by a CDPHE-certified asbestos inspector. A single sample of roofing material was collected from Trailer 112A. Visual inspections of the trailers' roofs, interior and exterior panels, walls, and floors revealed no evidence of chemical spills or releases (i.e., stains, discoloration, odors, or other physical characteristics). Based on historical information presented in Section 3.3.1 and the inspections conducted, the only additional RLC data required was the sample collected for asbestos analysis from Trailer 112A.



4.0 HAZARDS

4.1 Physical Hazards

Current physical hazards associated with the Trailers T112 A and T112C consist of those common to standard industrial environments. The trailers are not connected to any utilities, such as electricity and gas. Physical hazards are controlled by the Site Safety and Industrial Hygiene Program, which is based on OSHA regulations and standard industry practices.

4.2 Radiological Hazards

Based on historical knowledge and the RLC, Trailers T112A and T112C are classified as MARSSIM Unimpacted Class 3 (i.e., Type I pursuant to the DPP). These trailers do not contain radiological contamination above the free-release limits prescribed in DOE Order 5400.5 and the RFETS Radiological Control Manual. Survey results were below DCGLs (refer to Table 4-1), as were all scans. The two T112A roof samples were also below the total and removable alpha DCGLs (refer to Table 4-2). RLC data are presented in Appendices 2-4, by survey unit, for removable alpha, removable beta, total alpha and total beta, each in separate tables. Appendix 2 presents data for Survey Unit A, which includes the interior of T112 A. Appendix 3 presents data for Survey Unit C, which includes the interior and exterior of T112 C.



For each trailer, the potential for a hazard due to each of the following contaminants was considered:

- Asbestos.
- Beryllium;
- Lead and other metals;
- VOCs/SVOCs;
- PCBs.

The need for analysis of each potential hazard was evaluated based upon historical and process knowledge, given that the trailers were used exclusively for administrative purposes. The chemical hazards are summarized in Table 4-3.

4.3.1 Asbestos

Historical asbestos data indicated that four floor tile samples in T112A contain asbestos. The inspection conducted as part of RLC also determined that the flooring cement contains ACM.



Additionally, a sample of roofing material consisting of gray plaster was taken at the junction of two trailer units. This material was presumably used to seal the trailer units

together at their junctions, and contained a brown resinous material as well as some of the silver/black paint which covered the roof. This sample contained chrysotile asbestos in both the plaster and paint layers. However, all of the asbestos-containing material in the trailer was non-friable and therefore does not constitute a hazard.

Historical asbestos data indicate that no asbestos is present in T112C (refer to Section 3.3.1).

Table 4-1 Summary of Radiological Survey Data

		-	Remo Contam	ovable ination	1	Total Contamination ¹								
			lpha /100 cm²)		eta 00 cm²)	Alp (dpm/10	ha 00 cm²)	Beta (dpm/100 cm ²)						
	DCGL		20	10	000	10	0	50	00					
	Survey Points	Min.	Min. Max		Max.	Min.	Max	Min.	Max					
T112A Interior Survey Unit A	16	0.0	3.0	-44.0	28.0	-14.0	5.0	-845.0	-277.0					
T112A Exterior Survey Unit D	16	0.0	10.6	-60.0	44.0	10.0	90.0	-256.0	336.0					
T112C Interior and Exterior Survey Unit C	16	0.0	4.5	-40.0	40.0	4.0	94.0	-364.0	281.0					

Table 4-2 Radiological Sample Results for T112A Roof

ROOF CENTER

ISOTOPE	Reported Activity (pCi/g)	MDA (pCi/g)	Converted Activity (dpm/100cm ²)	Converted MDA (dpm/100cm²)	DCGL ¹ (dpm/100cm²)									
U-233/234	0.264	0.034	6.8	0.9	1000									
U-235	0.016	0.042	0.4	1.1	1000									
U-238	0.270	0.050	7.0	1.3	1000									
Pu-239/240	0.000	0.045	0.0	1.2	20									
Am-241	0.000	0.086	0.0	2.2	20									

SW CORNER

ISOTOPE	Reported Activity (pCi/g)	MDA (pCi/g)	Converted Activity (dpm/100cm ²)	Converted MDA (dpm/100cm²)	DCGL ¹ (dpm/100cm²)
U-233/234	0.259	0.072	6.0	1.7	1000
U-235	0.000	0.043	0.0	1.0	1000
U-238	0.332	0.035	7.7	0.8	1000
Pu-239/240	0.017	0.045	0.4	1.0	20
Am-241	0.000	0.053	0.0	1.2	20

¹ DCGL – Derived Concentration Guideline Level

4.3.2 Metals (including beryllium and lead in paint)

According to historical and process knowledge, no metals, including beryllium and lead, were used or stored in the two trailers, and therefore, no related hazards are present.

4.3.3 VOCs/SVOCs

According to historical and process knowledge, no chemicals were used or stored in either of the trailers, and therefore, no related hazards are present.

4.3.4 PCBs

All PCB-containing ballasts have been removed. There is no record of PCB product use or storage in any of the trailers, and therefore, no related hazards are present.

Table 4-3 Summary of T112A and T112C Chemical Hazards

Contaminant	Analysis	Historical	Below release
of Concern	,	or RLC?	limit or regulatory
,	·		thresholds?
Asbestos	Four floor tile samples in T112A were determined to contain asbestos in the mastic.	Historical	Yes ¹ .
	Cove base cement in T112A was assumed asbestos-containing.	RLC	
	A sample of T112A roofing material contained asbestos.	RLC	
	No asbestos was detected in T112C.	Historical	·
Beryllium	Surface smears in T112A (considered representative of T112A and T112C due to trailers being used solely for administration).	Historical	Yes.
VOCs/SVOCs	No history of use or storage. No characterization was required.	Historical	Yes.
Lead in paint	No characterization has been performed.	Historical	Yes ² .
PCBs	All PCB ballasts have been removed, including two in T112A which were potentially leaking inside the face plate. No specialized paints or coatings were observed. No	Historical	Yes ³ .
	characterization for PCB in paint was performed.		

- 1 Notification of the State and of the waste disposal facility of the presence of non-friable asbestos is required.
- 2 Environmental Waste Compliance Guidance #27, Lead-based Paint (LBP) and Lead-based Paint Debris Disposal, has directed that LBP debris generated outside of currently identified high contamination areas shall be managed as non-hazardous (solid) wastes and need not be sampled unless the potentially lead-containing component is to be scabbled or otherwise comprise a separate waste stream.
- 3 Environmental Waste Compliance Guidance #25, Management of Polychlorinated Biphenyls (PCBs) in Paint and Other Bulk Product Waste During Facility Disposition, has directed that applied dried paints, varnishes, waxes, or other similar coatings or sealants are acceptable for disposal (with notification) in a non-hazardous solid waste landfill as PCB Bulk Product Waste under 40 CFR 761.3 and 40 CFR 761.62 paragraph (b) and therefore need not be sampled as long as restrictions outlined in 40 CFR 761.62 regarding their disposal are met.

5.0 DATA QUALITY ASSESSMENT (DQA)

Data used in making disposition decisions must be of adequate quality. Adequate data quality for decision-making is required by applicable RMRS and K-H corporate policies (RMRS, 1998, §6.4 and K-H, 1997, §7.1.4 and 7.2.2), as well as by the customer (DOE, RFFO; Order O 414.1, Quality Assurance, §4.b.(2)(b)). Regulators and the public also expect decisions and data that are technically and legally defensible. Verification and validation of the data ensure that data used in decisions resulting from the RLC are usable and defensible.

The DQA consists of revisiting the DQOs used and determining whether those objectives were met. This data evaluation also consisted of verifying and validating the RLC data, which ensures that data input into decisions are accurate, precise, representative, complete, and comparable. Because only radiological data were collected for the project (i.e., no chemical surveys or samples were required), the DQA addresses only radiological survey and sample results.

Many of the DOE quality elements of Order 414.1 are inherent within the MARSSIM guidance, as DOE was a co-author of MARSSIM. The RLC for trailers 112A and 112C was conducted in accordance with the FDPM and the DDCP. These programs exist within the Site's DOE approved QA Program which accommodate applicable sections of NQA-1. Adequate implementation of the quality elements required by DOE Quality Assurance Order (414.1) was corroborated through the verification and validation process described within this section.

Original DQOs of the project are stated in §3.0. Problems, decisions, decision inputs, project boundaries, and error tolerances were adequately defined. Original estimates of sample types, quantities, and gridding locations/densities were confirmed by using statistics (vs. assumed values) derived from the actual data collected for the project.

The DQA presented in this section supports conclusions through implementation of the guidelines taken from the following MARSSIM sections:

- §4.9, Quality Control
- §8.2, Data Quality Assessment
- §9.0, Quality Assurance & Quality Control
- Appendix E, Assessment Phase of the Data Life Cycle
- Appendix N, Data Validation using Data Descriptors

The MARSSIM-recommended criteria for verification and validation of Pre-Demolition (final status) survey data, listed above, are summarized in Table 5-1. The MARRSIM criteria are listed across the top of the table whereas the project's proof of implementation is listed along the left-hand side of the table. One or more "checks" per column exhibit compliance with the MARSSIM criteria.



As stated previously, the decisions for both Trailers 112A and 112C are that contamination levels are below free-release criteria, for chemicals and radionuclides. The conclusion with respect to radiological contamination is derived with 95% confidence based on use of MARSSIM methodology in the survey units' design.



Trailers 112A and C Survey Compliance with MARSSIM Data Quality Guidelines Table 5-1

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5.1 VERIFICATION OF RESULTS

Verification ensures that data produced and used by the project are documented and traceable per quality requirements. Verification consisted of reviewing the project's data relative to three subsets:

- 1. Radiological scans,
- 2. Radiological static surveys for removable and total contamination, and
- 3. Radiochemical data resulting from samples taken and subsequently analyzed via alpha spectrometry.

Verification confirmed that:

- Chain-of-custody was intact from initial sampling though transport and final analysis;
- Preservation and hold-times were within tolerance;
- Format and content of the data are clearly presented relative to goals of the project, i.e., to determine, with at least 95% confidence, that the survey units of interest (T112A and T112C) are adequate for radiological free release.

Verification of the T112A and C Trailers RLC data also confirmed the presence of quality records representing implementation of the following quality controls:

- Calibrations (radiochemistry, surveys and scans), for accuracy;
- Laboratory control samples (LCS -- radiochemistry), for accuracy;
- Blanks (radiochemistry), for accuracy;
- Duplicate measurements (radiochemistry surveys and scans), for precision;
- Chemical yield (radiochemistry), for accuracy;
- Count times (radiochemistry surveys and scans), for sensitivity;
- Sample preparations (radiochemistry), for accuracy, representativeness.

Items requiring survey coverage were verified as follows:

- A grid survey map was developed for each survey unit.
- The grid survey maps served as an index of the subunits, and defined the subunit boundaries.
- Each grid survey map used to document Electra and Eberline surveys was reviewed against the trailer floor plan map for coverage.
- Because every grid survey map was correlated to a survey form, and all survey forms were inventoried via the survey summary sheet, 100% coverage of every subunit was assured.

Upon completion of the data management activities listed above, an independent peer review was performed on each survey package.

In summary, the verification confirmed that documentation and quality records are intact for the project, which in turn corroborates implementation of the required technical



quality controls and administrative requirements, particularly verification of those documents and records that will ultimately support the CERCLA Administrative Record. All relevant Quality records associated with T112A and T112C RLC decisions will be submitted to the RMRS Records Center for permanent storage within 30 days of the conclusion of the project.

5.2 VALIDATION OF RESULTS

Validation consisted of a technical review of all data that directly support the RLC decisions. Any limitations of the data relative to project goals are delineated, and the associated data are qualified accordingly. Data were validated relative to quality criteria discussed throughout previously noted MARSSIM sections and the PARCC parameters.

PARCC parameters are consistent with "data descriptors" in MARSSIM and address characteristics of the data that must be defined for scientific integrity and defensibility. The next section, which addresses the PARCC parameters -- Precision, Accuracy, Representativeness, Comparability, and Completeness, also include discussion on bias and sensitivity, two more data descriptors emphasized in MARSSIM.

Validation of analytical data to K-H contractual requirements (K-H Statements of Work) is currently performed on a site-wide basis at ~25% frequency by the K-H Analytical Services Division. Satisfactory validation at this frequency indicates that subcontracted laboratories are operating competently relative to industry-wide standards, and more specifically, that sample custody and analytical procedures are implemented under defined quality controls on a site-wide, programmatic basis. Site-wide data validation coupled with annual laboratory audits provide the inference that all analytical results not specifically validated are represented by the percentage that is validated. Radiochemistry performed for this RLC was verified as meeting K-H contractual requirements -- Module RC01-B.3 for alpha spectrometry (4/24/98 and Module 9, 7/6/98).

5.2.1 PRECISION

5.2.1.1 Radiological Surveys and Scans

Precision of the radiological instrumentation was satisfactory based on tolerance charting of daily source measurements for each individual sensor used on the project, which includes all measurement types (scans and static measures for total contamination and swipes for removable). Adequate precision was established through instrument performance within a ±20% range as defined by measurement results compared to a standard source value. Based on standard protocol (e.g., Procedures 1-P73-HSP-18.10, Radioactive Material Transfers and Unrestricted Release of Property and Waste, and 3-PRO-165-RSP-0702, Contamination Monitoring Requirements), any measurement exceeding the defined tolerance limits required corrective action (repair or replacement) prior to the instrument's use during pre-demolition survey.



Duplicate measurements were acquired for total and removable surface activity measurements at ≥30% frequency per survey unit. All duplicate measurements were within tolerance based on the acceptance criterion that both results be below Derived Concentration Guideline Level-Averaged Measures (DCGL_W) (note: even if populations were "significantly" different between real and duplicate results, if both duplicate and real population statistics are less than action levels, the difference between duplicate and real values is, ultimately, insignificant relative to free-release decisions).

5.2.1.2 Radiochemistry

Results from laboratory duplicates indicate adequate lab precision based on duplicate results within statistical tolerance values (>90% confidence of equivalency between the original sample and the duplicate). Although field duplicate samples were not acquired for determination of overall project precision, agreement between the two samples to within a range less than the DCGL_W indicates that reproducibility is adequate for project decisions (i.e., relative to free-release of materials).

5.2.2 ACCURACY (and Bias)

5.2.2.1 Radiological Surveys and Scans

Accuracy of radiological surveys and scans is satisfactory based on RFETS-programmatic annual calibrations that establish instrument efficiencies and sensitivities for all instrumentation used on this project. Daily source checks also provided periodic checks to ensure that all sensors are within tolerance during daily operations. Calibration and calibration check results were within the RFETS and industry-standard requirement of 20% of the applicable reference standard values. Full-scale, multi-point calibrations provided accuracy of ± 10% prior to implementation of survey instruments in the field, consistent with guidelines put forth in ANSI-N323.d

Total beta results for Survey Unit A may appear to be biased low based on the consistently negative values (with an arithmetic average of -519 dpm/100cm) for the Unit A sample set. However, based on the method by which local area backgrounds were attained relative to measurements acquired within the 112A Trailer, negative values can be expected. Local area backgrounds for the NE Electra DP6 were determined at approximately 3 ft above ground level outside the trailer location; probes were held face up at waist level and underwent a 1-minute count time. In contrast, trailer-interior measurements are acquired at relatively higher elevations (above grade), and are shielded from much exterior "shine" within the trailer. As a result, the high background and/or low instrument bias would not appear to impact Survey Unit decisions, as the levels are significantly lower than the free-release action levels (5000 dpm/100cm²).

Removable beta results might also appear to have a slight negative bias based on performance check results that are consistently below zero (i.e., within the negative acceptance range). Such instrument performance, when consistently below the standard reference values, suggests that instrument efficiency may need to be adjusted

upward for more accurate results. This is due to using an assumed minimum efficiency of 25% for BC 4s when actual efficiencies are higher. However, as discussed above, the magnitude of the negative values does not suggest a potential bias high enough to compromise survey unit decisions.

Several survey measurements for total alpha exceeded free-release levels, however, upon re-survey yielded results well below free-release levels. The re-survey results, which did not confirm the initial elevated values, indicate that initial results were false positives (i.e., initial readings were caused by naturally occurring radioactive progeny and were not DOE-added radionuclides of concern).

5.2.2.2 Radiochemistry

Accuracy of the radiochemical results were within tolerance and acceptable based on the associated results of laboratory control samples and calibrations at the laboratory. Preparation blanks also confirmed that no significant cross-contamination occurred in the analysis process. Uncertainties of the radiochemical results are quantified for each sample by both 2-sigma error (probabilistic) and total error (systematic + probabilistic). Uncertainties associated with the alpha-spectrometry analyses were within standard industry magnitudes.

5.2.3 REPRESENTATIVENESS

Samples, surveys and scans are representative based on the following criteria:

- Familiarity with facilities -- multiple walk-downs and collaborations by management and technical staff;
- Implementation of industry-standard chain-of-custody protocols;
- Compliance with sample preservation and hold times;
- Documented and (site) approved methods;
- Radiochemistry (alpha spectrometry) via K-H Module RC01-B.3;
- Radiological surveys via Contamination Monitoring Requirements (3-PRO-165-RSP-07.02);

Quality Assurance assessments were limited to the DQA presented in this section; no other site assessments were performed.

5.2.4 COMPLETENESS

The data set for this project is complete, with respect to surveys scans, samples and associated quality records ("data packages") resulting from the characterization process. Table 6-2 summarizes the minimum required number of samples surveys/scans, the actual quantity of samples/surveys/scans to date, and whether DQOs were achieved.



Table 5-2 Data Completeness Summary

Rad Measurement Type	Required # of Samples/ Surveys/Scans	Actual # of Samples/ Surveys/Scans	Comments
Survey Unit A (T112A	Interior)		
Eberline SAC-4 (removable alpha)	13	16	DQO achieved
Eberline BC-4 (removable beta)	13	16	DQO achieved
NE Electra (total alpha and beta)	13	16	DQO achieved
Survey Unit C (T112C	Interior and Exterior)		
Eberline SAC-4 (removable alpha)	13	16	DQO achieved
Eberline BC-4 (removable beta)	13	16	DQO achieved
NE Electra (total alpha and beta)	13	16	DQO achieved
Survey Unit D (T112A	Exterior)		
Eberline SAC-4 (removable alpha)	13	16	DQO achieved
Eberline BC-4 (removable beta)	13	16	DQO achieved
NE Electra (total alpha and beta)	13	16	DQO achieved
Radiochemical	0	2	DQO achieved

Consistent with the DQO process, the sampling design was optimized through back-calculating actual measurement results (acquired during RLC) and comparing model output with original estimates. The Post Survey Removable Contamination Summary Statistics Calculation verification worksheets for each survey unit are included in Appendices 2,3 and 4. Use of actual sample/survey/scan (result) variances in MARSSIM's DQO model provided confirmation that an adequate number of samples/surveys/scans had been acquired. Inputs required for decision-making, as stated in the original (planning) DQOs, were acquired, including coverage of originally-planned, 3-dimensional boundaries of the structure. All radiological results are valid without qualification, and form data sets with adequate quantities and quality of data for free-release decisions on the three survey units (2 trailers) of interest.

5.2.5 COMPARABILITY

All results presented are comparable with radiological survey/scan and radiochemistry data on a site- and DOE-complex wide basis. This comparability is based on:

• Use of standardized engineering units in the reporting of measurement results



- Consistent sensitivities of measurements at approximately 50% or less of the DCGL_W (approximately 50% or less of the DCGL_{EMC} for scans)
- Use of site-approved procedures
- Systematic quality controls
- Thorough documentation of the planning, sampling/analysis process, and data reduction into formats designed for making decisions based on the project's original data quality objectives.

5.2.6 SENSITIVITY

Adequate sensitivities, in units of dpm/100 cm², were attained for all surveys/scans and radiochemical methods implemented based on minimum detectable activities (MDAs) at 50% of the transuranic DCGL_W (\leq 50% DCGL_{EMC} for scans). The nominal MDAs for each survey and radiochemical method are summarized as follows:

- Removable alpha contamination (Eberline SAC-4): 8.3 dpm/100cm²;
- Removable beta contamination (Eberline BC-4): 200 dpm/100cm²;
- Total alpha contamination (NE Electra): 49 dpm/100cm²;
- Total beta contamination (NE Electra): 351 dpm/100cm²;
- Radiochemistry (Alpha Spectrometry): 7.9 dpm/100cm² (converted from 0.119 pCi/g).

5.2.7 OTHER QA ELEMENTS

All personnel performing activities affecting quality within the RLC project were qualified to perform their specific tasks. Suitable training and qualification documentation for personnel performing the work, from the laborers to technical professionals to management, is documented by the RMRS Training Department. In addition, Quality Assurance assessments were limited to the DQA presented in this section; no other site assessments were performed.

5.2.8 DQA SUMMARY

In summary, the data presented in this report have been verified and are qualified as valid and complete for comparison with free-release criteria (action levels) as stated in the DQOs. All media sampled, surveyed and scanned relative to both total and removable alpha activities, yielded results less than action levels for the associated contaminants of concern. Therefore, Survey Units A, C, and D meet the free-release criteria with the statistical confidence stated in this section and throughout the report.



6.0 CLASSIFICATION OF TRAILERS T112A and T112C

Based on the analysis of radiological, chemical and physical hazards, trailers T112A and T112C are classified as Type I Facilities (i.e., "free of contamination") pursuant to the RFETS Decommissioning Program Plan (DPP, K-H, 1998a). Classification was based on a review of historical and process knowledge, historical radiological and chemical data, and newly acquired RLC data. Results indicate no radioactive or chemical contamination exists and no significant physical hazards are present. Trailer 112A contains asbestos as part of the floor tile, which is considered an integral part of the structure.

7.0 REFERENCES

DOE/RFFO, CDPHE, EPA, 1996. Rocky Flats Cleanup Agreement (RFCA), July 19, 1996.

DOE Order 5400.5, "Radiation Protection of the Public and the Environment."

DOE Order 414.1, "Quality Assurance."

EPA, 1994. "The Data Quality Objective Process," EPA QA/G-4.

K-H, 1997. "Kaiser-Hill Team Quality Assurance Program", Rev. 5, 12/97

K-H, 1998a. Decommissioning Program Plan, October 8, 1998.

K-H, 1998b. Facility Disposition Program Manual, MAN-076-FDPM.

K-H, 1999a. Decontamination and Decommissioning Characterization Protocol.

K-H, 1999b. Reconnaissance Level Characterization Plan

MARSSIM – Multi-Agency Radiation Survey and Site Investigation, 12/97 (NUREG-1575, EPA 402-R-97-016).

RFETS, D&D Facility Characterization Interview Checklist and Attached Facility Checklist and HRR Manager's Report

RFETS Chronic Beryllium Disease Prevention Program, "List of Known Beryllium Areas"

RFETS, Environmental Waste Compliance Guidance #25, Management of Polychlorinated Biphenyls (PCBs) in Paint and Other Bulk Product Waste During Facility Disposition

RFETS, Environmental Waste Compliance Guidance #27, Lead-Based Paint (LBP) and Lead-Based Paint Debris Disposal

RMRS, 1998. Quality Assurance Program Description, RMRS-QAPD-001, Rev. 2, 4/98

Appendix 1

Historical Site Assessment

Facility Summary

T112A - This unit has been unoccupied since 3/99, it is assembled from five Trailers. The unit was always used for office space, by either Plant Traffic the Employee Store, Transportation Security, or Telecommunications offices. What is left inside are wall hung fire extinguishers, bolted to wall wooden bookshelves, toilet fixtures in the men/women restrooms, partitions, acoustical ceiling tiles, and the doors are hung. The exterior doors remains and have cipher locks. The exterior doors (4) have wooden weather protection porches. The interior and exterior is in good condition. On the east side of the trailer, approximately 2-3 feet away from the east wall, there is a utility pole, and at the southwest corner there is a de-energized transformer. These are physical hazards that will have to be worked around. when this unit is relocated. From all historical searches, interviews, and historical data located, there has never been any Radioactive material or chemicals stored inside of this trailer. Radiological survey data is not available. However, there is asbestos data available, that indicates there is asbestos containing material in the floor tile.

T112C - This unit has been unoccupied since 1998. It's a singlewide trailer always used as office space. Currently inside, are doors, acoustical ceiling tiles, partitions, wall hung fire extinguishers, and in a separate room there is telecommunication equipment and a fire water riser with controls. The unit is in good condition. However, some siding has been blown loose from the wind. From all historical searches, interviews, and other historical data located, there has never been any Radioactive material or chemical hazards found in any historical data, interviews, or other historical searches, and there are no physical hazards. However, the wood construction at both doors will have to be removed before the trailer is removed.

HISTRORICAL FACILITY OVERVIEW FOR TRAILER T- 112A

- 1.0 This trailer was constructed/assembled at this site, Central Avenue and Fourth Street, behind the northwest corner of Building 112, in the early1960s. The size of this trailer is approximately 45' X 60' and it is assembled from 5 trailer units of approximately 12' X 45' feet in size. There are four doors leading into this trailer, two on the east and two on the west. All of the entry doors are covered; the entry covers range in size from 4' X 4' to 6' X 6'. The siding and the skirting, which is approximately 28" high, around the bottom of the trailer are enamel on aluminum. Structurally the trailer is sound, there are no leaks in the ceiling and the outside has no damage. The foundation that this office trailer sets on is concrete blocks and the tie-down method for the unit is steel cable from the trailers I-beams secured to concrete caissons. The interior outside walls is wood paneling over insulation, the interior partition wall is wood paneling on stud framing, and the floor is carpet and sheet vinyl/linoleum on wood. The ceiling is a drop type with acoustical tile panels up to 12 feet long at various widths. All four doors on this trailer office facility have cipher locks on them.
- 2.0 Prior to the Radio & Pager Operations moving into T-112A, the south half was used for I&ET/Telecommunications offices. The Plant Traffic Department for Plant travel originally occupied the north section of T-112A. The south half of T-112A was a Company Store when the RFETS was operated by Rockwell International (from approximately 1975 to 1990). Later the north section of T-112A was used by Traffic's Transportation Security Office (TSO) Scheduling. Both the I&ET and TSO groups vacated this trailer office building in approximately March, 1999. The trailer has Men and Women restroom facilities. The Men's restroom has a hot water heater for the facility. No other equipment remains in the trailer. Some books and trash remain throughout inside of the trailer. At the present time this trailer is unoccupied and Unoccupied Signs have recently been added to the four entry doors of the facility.
- 3.0 The utilities for this trailer consist of electric heat pumps (5 total) for both heating and air conditioning. T-112A has a smoke detection system and is connected to the Plant Fire Alarm System. A high voltage electrical power transformer is mounted on a concrete pad outside the southwest corner of T-112A. There are no engineering drawings for this trailer. A room layout drawing for this unit is available. Photographs of the exterior and interior of T-112A are available. Radiological surveys may have been done, but data is not available. This trailer will be resurveyed to meet present standards for release. The plant stopped the use of lead based paint in1989, this trailer, if painted before this date may have been painted with lead based paint. Asbestos characterization data exists for the T-112A Unit, according to Kevin Sheehan, X7250, T-452D. No chemicals were used or stored in this trailer. No WSRIC has been done on this trailer. There are no PATS outstanding on this trailer. (See the Facility Planning layout sketch and exterior/interior photographs behind Tab #13 in this Manual.)

Type 1 Facility Checklist

TYPE 1 FACILITY: <u>Trailer</u>	(T112A)
CURRENT LANDLORD: 1	RFCSS
DATE OF COMPLETION:	7/15/99

ITEM	YES	NO
Does the facility contain radiological postings?		X
Does the facility contain chemical postings?		X
Are there any installed hazards?		X
Do the historical surveys (radiological and chemical) indicate that the facility is clean?	X	
Are there RCRA units within the facility?		X
Is there a history of the building available?	X	
Is there any equipment/furniture left in the facility? Fire Extngrs., wooden book shelves bolted to walls, toilet fixtures, water heater	X	
Is there a future mission identified for the facility?		X
Will the facility be left unsecured after it is vacated?		X

If any answer to any of the above questions is "Yes", complete the following questions and complete the "graded" PEP in accordance with chapter 2.

Note: An answer of "Yes" to any question, specifically one dealing with hazards, may indicate the facility is not a Type I Facility. Check with the D&D Programs office.

If the answer to all questions is "No" complete the "graded" PEP in accordance with Chapter 2.

hazards in this	railer.
	cal Hazards, location, and quantity. None. Based on historic taken, there are no chemical hazards in this trailer.
Chere is Asbest	os Containing Material (ACM) in the floor tile.

3. List the Physical Hazards:
Elec. power pole near middle of east wall and de-energized transformer at the

Southwest corner

HISTORICAL FACILITY OVERVIEW FOR TRAILER T-112C

- 1.0 This trailer was put in place at this site, Central Avenue and Fourth Street, in 1991. The size of Trailer T-112C is 14' 0" X 60' 3" X 13' 10" at the roof edge (2' 10" is skirting). There are two doors leading into this trailer on the south side with a cipher lock on the west one and a key lock on the east. The entryways are covered with wood panels. The west has wooden steps leading to it and the east has a truck dock and had a handicap access ramp that has been removed. The siding and the skirting around the bottom of the trailer are enamel baked on aluminum. Structurally the outside has a panel that has been torn loose and part of it has blown away, inside its condition is good. The interior outside walls is vinyl over 4' by 8' dry wall over insulation, the interior partition walls are the same materials on stud framing. The ceiling is a drop type with 2' by 4' acoustical tile panels and the floor is carpet over wood flooring.
- 2.0 This trailer has been used as offices all the time it has been on site. There are 6 hard walled rooms of which 5 are offices. The sixth contains the telecommunication equipment and the fire sprinkler controls. The last occupant was Wackenhut Services which, used it as a scheduling office. They moved out in1998. At the present time the trailer is unoccupied and Unoccupied Signs have recently been added to the two doors of the facility.
- 3.0 The utilities for this building are an electric heat pump for heating and cooling, a fire sprinkler system, and it is connected to the plant fire alarm and PA systems. The drawings for this trailer consist only of a Facility Planning lay out sketch. Radiological surveys may have been done, but the data is not available. This unit will be resurveyed to meet present standards for release. Asbestos characterization data exists for the T-112C Unit, according to Kevin Sheehan, X7250, T-452D. The tie down method and the support structure underneath is unknown because of the skirting all around the bottom. The plant stopped the use of lead based paint in 1989. This trailer if painted before this date may have been painted with lead based paint. No chemicals were used or stored in this trailer. No WSRIC has been done on this trailer. There are no PATS outstanding on this trailer. (See the Facility Planning sketch behind Tab # 13 in this Manual. Plant site aerial photos and outside and inside photos are behind Tab #13.)

Type 1 Facility Checklist

TYPE 1 FACILITY: Trailer (T112C)
CURRENT LANDLORD: R	FCSS
DATE OF COMPLETION:	7/15/99

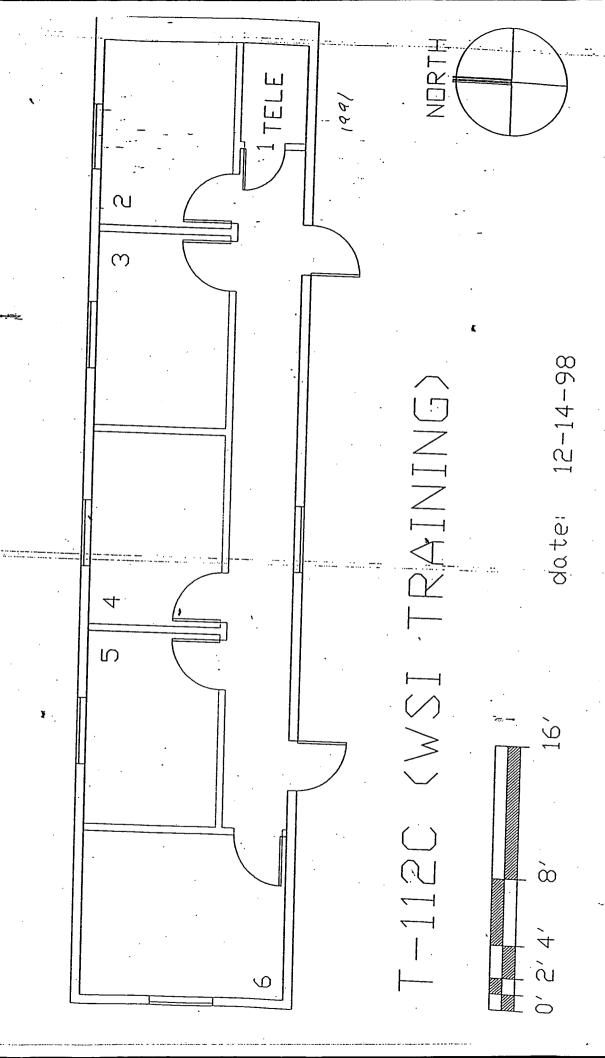
ITEM	YES	NO
Does the facility contain radiological postings?		X
Does the facility contain chemical postings?		X
Are there any installed hazards?		X
Do the historical surveys (radiological and chemical) indicate that the facility is clean?	X	
Are there RCRA units within the facility?		X
Is there a history of the building available?	X	
Is there any equipment/furniture left in the facility? Fire Extgrs.	X	
Is there a future mission identified for the facility?		X
Will the facility be left unsecured after it is vacated?		X

If any answer to any of the above questions is "Yes", complete the following questions and complete the "graded" PEP in accordance with chapter 2.

Note: An answer of "Yes" to any question, specifically one dealing with hazards, may indicate the facility is not a Type 1 Facility. Check with the D&D Programs office.

If the answer to all questions is "No" complete the "graded" PEP in accordance with Chapter 2.

1.	List the Radiological Hazards, location, and quantity: Based on Historical data found and interviews taken, there are no known RAD
	Hazards in this trailer
2.	List the Chemical Hazards, location, and quantity: Based on Historical Data found and interviews taken, there are no known
	Chemical hazards in this trailer
3.	List the Physical Hazards:



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Appendix 2

Radiological Survey Data for Interior of Trailer T112A (Survey Unit A)

Appendix 2

Radiological Survey Data for Interior of Trailer T112A (Survey Unit A)



APPENDIX 2 - Survey Unit A (Interior T112A)

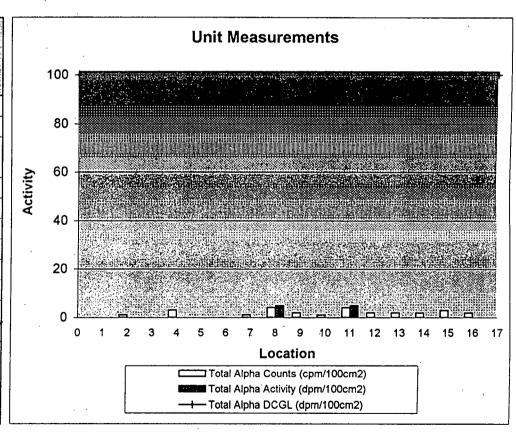
- Survey Unit A Data Summary
- MARSSIM Calculation/Verification Worksheet
- Total and Removable Radiological Survey Results
- Performance Test Logs
- Survey Package Cover Sheet
- Sampling and Survey Instructions
- Grid Survey Maps

Survey Unit A Data Summary - T112A Interior

August 18, 1999

standard deviation: 6.333772 max: 5.0 Instrument background: 3 cpm
mean: -6.125 min: -14.0 Instrument efficiency: 21.9 %
median: -5 Instrument MDA: 49 dpm

	Surface	Lo	cation	Grid Location	Counts	Total Alpha Activity (dpm/100cm²)	DCGL
1	Room	1	Wall	11	0	-14	100
2	Room	2	Wall	P2	1	-9	100
3	Room	4	Floor	A6	0	-14	100
4	Room	4	Ceilling	A4	3	0	100
5	Room	4	Ceilling	A6	0	-14	100
6	Room	5	Wall	H2	0	-14	100
7	Room	6	Floor	A1	1	-9	100
8	Room	6	Ceilling	B1	4	5	100
9	Room	6	Wall	H2	2	-5	100
10	Room	8	Wall	Q1	1	-9	100
11	Room	8	Wall	R2	. 4	5	100
12	Room	9	Floor	A3	2	-5	100
13	Room	9	Ceilling	B4	2	-5	100
14	Room	10	Ceilling	C2	2	-5	100
15	Room	11	Wall	K1	3	0	100
16	Room	12	Wall	K2	2	-5	100





Survey Unit A Data Summary - T112A Interior

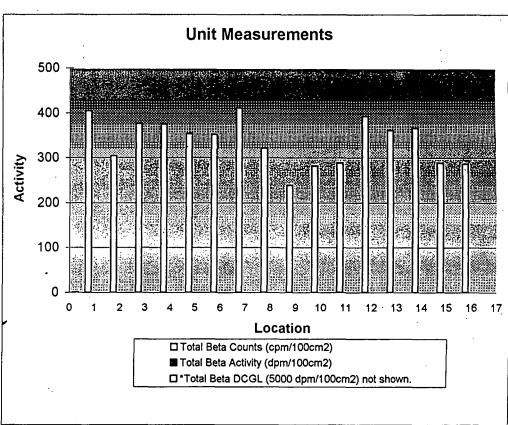
August 18, 1999

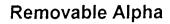
standard deviation: 169.876 max: -277.0 Instrument background: 495 cpm

mean: -518.5 min: -845.0 Instrument efficiency: 30.3 %

median: -468.5 Instrument MDA: 351 dpm

	Surface	Lο	cation	Grid Location	Total Beta Counts (cpm/100cm²)	Total Beta Activity (dpm/100cm²)	DCGL
1.	Room	1	Wall	l1	405	-297	5000
2	Room	2	Wall	P2	304	-630	5000
3	Room	4	Floor	A6	377	-389	5000
4	Room	4	Ceilling	A4	. 376	-393	5000
5	Room	4	Ceilling	A6	354	-465	5000
6	Room	5	Wall	H2	352	-472	5000
7	Room	6	Floor	A1	411	-277	5000
8	Room	6	Ceilling	B1	322	-571	5000
9	Room	6	Wall	H2	239	-845	5000
10	Room	8	Wall	Q1	282	-703	5000
11	Room	8	Wall	R2	288	-683	5000
12	Room	9	Floor	А3	393	-337	5000
13	Room	9	Ceilling	B4	362	-439	5000
14	Room	10	Ceilling	C2	367	-422	5000
15	Room	11	Wall	K1	288	-683	5000
16	Room	12	Wall	K2	286	-690	5000



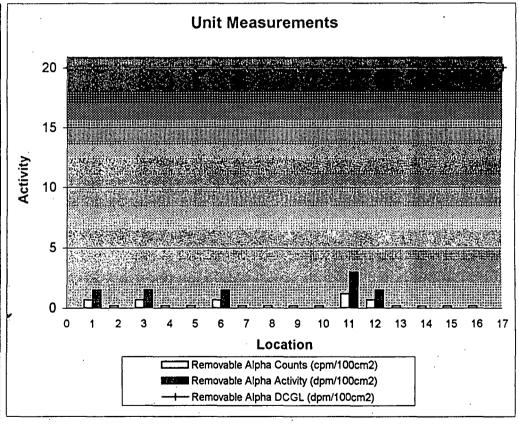


Survey Unit A Data Summary - T112A Interior

August 18, 1999

standard deviation:	0.928709	max:	3.0	Instrument background:	0.2 cpm	
mean:	0.5625	min:	0.0	Instrument efficiency:	33 %	,
median:	0			Instrument MDA:	7.6 dpm	

	Surface		cation	Grid Location	7 - 11 10 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	Removable Alpha Activity (dpm/100cm²)	DCGL
1	Room	1	Wall	<u> 1</u>	1	1.5	20
2	Room	2	Wall	P2	0	0	20
3	Room	4	Floor	A6	1	1.5	20
4	Room	4	Ceilling	A4	0	0	20
5	Room	4	Ceilling	A6	0	0	
6.	Room	5	Wall	H2	1	1.5	20
7	Room	6	Floor	A1 .	0	. 0	20
8	Room	6	Ceilling	B1	0	0	20
9	Room	6	Wall	H2	0	0	20
10	Room	8	Wall	Q1	Ö	0	20
11	Room	8	Wall	R2	. 1	3	20
12	Room	9	Floor	А3	1	1.5	20
13	Room	9	Ceilling	B4	0	0	20
14	Room	10	Ceilling	C2	0	0	20
15	Room	11	Wall	K1	0	0	20
16	Room	12	Wall	K2	0	0	20



40 cpm	25 %	200 dpm
Instrument background:	Instrument efficiency: 25 %	Instrument MDA: 200 dpm
28.0	-44.0	
max:	min:	
on: 20.12627	an: -6.5	0
standard deviation:	mean:	median:

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Survey Area: T112 Building: T112A

Survey Unit: A (T112A Interior)

Post Survey Removable Contamination Summary Statistics Calculation Verification Worksheet

Step 1:

Conduct a preliminary data review: (the mean, standard deviation, and median of the <u>Unit A</u> removable surface contamination data are calculated on the "<u>Survey Unit A Data</u>" sheet. Because all removable survey measurement results are less than DCGL_W (alpha less than 20 dpm/100 cm², beta less than 1000 dpm/100 cm²), the survey unit clearly meets the removable contamination release criterion.

Step 2:

Select the statistical tests: The one-sample sign test was selected to assess the data, with α = 0.05 and β = 0.05. The number of sample points calculated was based on the use of this test.

The performance of the sign test was not necessary due to the fact that each individual net result was less than the DCGL_w. Thus, the sign test would result in the rejection of the null hypothesis, and conclude that the median concentration of residual radioactivity in the survey unit is less than the DCGL_w.

Step 3:

Verify the assumptions of the test: The assumed data variance, as indicated by the assumed standard deviation was verified by re-calculating the required number of smears with the ACTUAL survey unit standard deviation.

The actual removable survey standard deviations for Unit A are: $\alpha 0.93$ $\beta 20.1$

Thus, the ACTUAL required number of measurements is as follows:

α:

 $\Delta/\delta = (DCGL_{REMOVABLE} - LBGR_{REMOVABLE})/SD_{REMOVABLE}$

 $\Delta/\delta_{transuranics} = (20 \text{ dpm/}100 \text{cm}^2 - 10 \text{ dpm/}100 \text{cm}^2) / \underline{0.93} \text{ dpm/}100 \text{cm}^2 = \underline{11}$

β:

 $\Delta \delta = (DCGL_{REMOVABLE} - LBGR_{REMOVABLE}) / SD_{REMOVABLE}$

 $\Delta/\delta_{\text{transuranics}} = (1000 \text{ dpm}/100 \text{cm}^2 - 500 \text{ dpm}/100 \text{cm}^2)/\frac{20.1}{20.1} \text{ dpm}/100 \text{cm}^2 = \frac{24.9}{20.1}$

Where:

Δ/δ

is the relative shift or the resolution of measurements in units of measurement

uncertainty

DCGL REMOVABLE

is the removable surface contamination derived concentration guideline value (DOE Order 5400.5 removable surface contamination limit equals 20 dpm/100cm² for transuranics per the T112A-C Pre

Demolition Survey Plan)

LBGR REMOVABLE

is the lower bound of the gray region – the lower bound of the range of values of the parameter of interest in a survey unit where the consequences of making a decision error is relatively minor (set equal

to value utilized in original sample size calculation).

 $SD_{REMOVABLE}$

is the ACTUAL standard deviation of the removable surface contamination measurements

Determine the Sign P value by looking up the relative shift (Δ/δ) in Table 5.4 of MARSSIM (the Sign P value is the estimated probability that a random measurement from the survey unit will be less than the DCGL when the survey unit median is actually at the LBGR). The Sign P value from Table 5.4, equals $\underline{0.998650}$ for a relative shift of 3.0 (The highest published value is utilized for conservatism).

Survey Area: T112 Building: T112A
Survey Unit: A (T112A Interior)

Post Survey Removable Contamination Summary Statistics Calculation Verification Worksheet

Step 3: Continued

Determine the number of removable surface contamination measurements for the applicable survey unit using the following MARSSIM, Section 5.5.2.3 formula that is based on radioactive contaminants of concern not being present in the background:

$$\alpha$$
 $N = (1.645 + 1.645)^2 / 4(Sign P - 0.5)^2$
 $N = (1.645 + 1.645)^2 / 4(0.998650-0.5)^2 = \underline{10.9}$
 β
 $N = (1.645 + 1.645)^2 / 4(Sign P - 0.5)^2$
 $N = (1.645 + 1.645)^2 / 4(0.998650-0.5)^2 = \underline{10.9}$

Where:

1.645

is the alpha and beta decision error value (95% confidence) per the T112A-C Pre Demolition

Survey Plan

Sign P equals 0.998650

Step 4: Increase N by 20% to allow for missing or invalid data points per MARSSIM, Section 5.5.2.3.

$$N = 10.9 * 1.2 = 13$$

Conclusion: Utilizing a conservative relative shift value of 3.0, a minimum of $\underline{13}$ α and β Removable Surface Contamination measurements were required in $\underline{\text{Unit } A}$.

Step 4:

Draw conclusions from the data: All measurements are less than DCGL_w. The minimum number of required removable survey measurements were collected. Thus, survey unit Unit A complies with the removable contamination release criteria.

DAVID A BARNES	QA2-	8-18-99
Prepared By: Printed Name	Radiológical Engineer Signature	Date
MARWICS	Mostakulv	8/18/99
Reviewed By: Printed Name	Radiological Engineer Signature	/ Date

Survey Area: T112 Building: T112A

Survey Unit: A (T112A Interior)

Post Survey Total Surface Activity Summary Statistics Calculation Verification Worksheet

Step 1:

Conduct a preliminary data review: (the mean, standard deviation, and median of the <u>Unit A</u> data are calculated on the "<u>Survey Unit A Data</u>" sheet. Because all total surface activity (TSA or TSC) measurement results are less than DCGL_W (less than 100 dpm/100 cm²), the survey unit clearly meets the TSA release criterion.

A graphical data review was also performed on the attached form. The posting plot indicated that spatial trends of elevated areas are not present. The histogram indicated that no isolated areas of elevated activity are present.

Step 2:

Select the statistical tests: The one-sample sign test was selected to assess the data, with α = 0.05 and β = 0.05. The number of sample points calculated (see "Total Surface Activity Measurement Calculation Worksheet") was based on the use of this test. A local area background (LAB) value was subtracted from each gross measurement to calculate a net result, thus the sign test applies (sign test is typically applied only when the contaminant is not present in background).

The performance of the sign test was not necessary due to the fact that each individual net result was less than the DCGL_w. Thus, the sign test would result in the rejection of the null hypothesis, and conclude that the median concentration of residual radioactivity in the survey unit is less than the DCGL_w.

Step 3:

Verify the assumptions of the test: The assumed data variance, as indicated by the assumed standard deviation was verified by re-calculating the required number of samples with the ACTUAL survey unit standard deviation.

The actual total surface contamination standard deviations for Unit A are: α 6.3 β 170

Thus, the ACTUAL required number of samples is as follows:

$$\Delta/\delta = (DCGL_{TSA} - LBGR_{TSA})/SD_{TSA}$$

 α $\Delta/\delta_{\text{transuranics}} = (100 \text{ dpm/}100 \text{cm}^2 - 50 \text{ dpm/}100 \text{cm}^2) / \frac{6.3}{6.3} \text{ dpm/}100 \text{cm}^2 = \frac{7.9}{100}$

 β $\Delta/\delta_{transurances} = (5000 \text{ dpm}/100\text{cm}^2 - 2500 \text{ dpm}/100\text{cm}^2) / \frac{170}{170} \text{ dpm}/100\text{cm}^2 = 316$

Where:

 Δ/δ is the relative shift or the resolution of measurements in units of measurement

uncertainty

DCGL TSA is the total surface Activity derived concentration guideline value (DOE Order 5400.5 total surface

Activity limit equals 100 dpm/100cm² for transuranics and 5000 dpm/100cm² for uranium, per the

T112A-C Pre Demolition Survey Plan)

LBGR TSA is the lower bound of the gray region – the lower bound of the range of values of the parameter of

interest in a survey unit where the consequences of making a decision error is relatively minor (set equal

to the value utilized in the original sample size calculation).

SD TSA is the ACTUAL standard deviation of the total surface Activity

Determine the Sign P value by looking up the relative shift (Δ/δ) in Table 5.4 of MARSSIM (the Sign P value is the estimated probability that a random measurement from the survey unit will be less than the DCGL when the survey unit median is actually at the LBGR). The Sign P value from Table 5.4, equals $\underline{0.998650}$ for a relative shift of 3.0 (The highest published value is utilized for conservatism).

Building: Survey Area: T112 T112A **Survey Unit:** A (T112A Interior)

Post Survey Total Surface Activity Summary Statistics Calculation Verification Worksheet

Step 3: Continued

Determine the number of TSA surface Activity measurements for the applicable survey unit using the following

MARSSIM, Section 5.5.2.3 formula that is based on Plutonium contaminants not being present in the background:

 α and β

 $N = (1.645 + 1.645)^2 / 4(Sign P - 0.5)^2$

 $N = (1.645 + 1.645)^{2}/4(0.998650-0.5)^{2} = 10.9$

Where:

1.646 is the alpha and beta decision error value (95% confidence) per the T112A-C Pre Demolition

Survey Plan

equals 0.998650 Sign P

Step 4: Increase N by 20% to allow for missing or invalid data points per MARSSIM, Section 5.5.2.3.

N = 10.9 * 1.2 = 13

Conclusion: Utilizing a conservative relative shift value of 3.0, a minimum of 13 Total Surface Activity measurements were required in Unit A.

Step 4:

Draw conclusions from the data: All measurements are less than DCGL_w. The minimum number of required TSA

measurements were collected. Thus, survey Unit A complies with the TSA release criteria.

DAVID A. BARRES	Sha	8-18-99
Prepared By: Printed Name	Radiological Engineer Signature	Date
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T112A interior MDA

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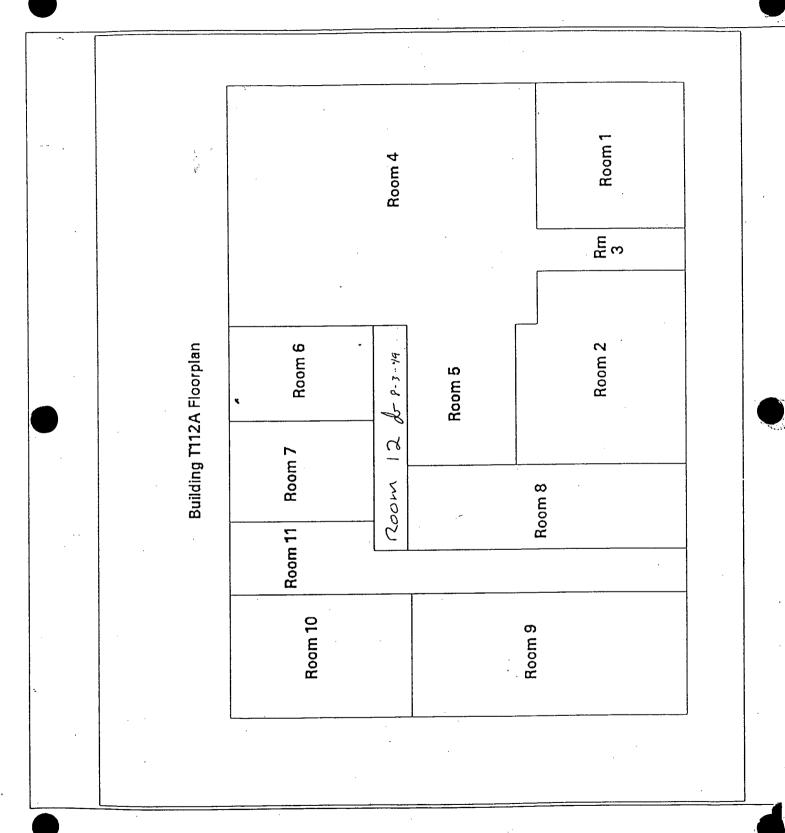
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ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE RADIOLOGICAL SAFETY Continuation Sheet SURVEY RESULTS Location/Description Location/Description Total Total Removable Swipe Removable Swipe Results in DPM/100CM² Results in DPM/100CM² Alpha Beta Alpha Beta # Alpha Beta Alpha Bet: T112A ROOM 3 FLOOR A1 78 512 : , T112A ROOM 4 FLOOR D8 78 512 T112A ROOM 11 FLOOR B12 78 512 NA 512 T112A ROOM 11 FLOOR B2 78 N/1 . . . wate Reviewed: 8/13/19 RS Supervision: 5 English Print Name

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vipe #	Location/Description (Results in DPM/100CM ²)	_	vable			Swipe		ation/Descriptio		Remo	$\overline{}$	То	
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46	T112A ROOM 1 WALL I2 (M1).	1.5	.0	-14	-297	QA						-9	-366
	T112A ROOM 2 WALL P2	0.0	28	-9	-630	QA				\square		-14	-327
11	T112A ROOM 4 FLOOR A6 *	1.5	0	-14	-389	QA				N	4	9	-667
	T112A ROOM 4 CEILING A4 '	0.0	0	0	-393	QA				\sqcup	λ	-9	-323
1	T112A ROOM 4 CEILING A6	0.0.	-32	-14	-465	QA	#15				$-\!$	-5	-723
	T112A ROOM 5 WALL H2	1.5	-32	-14	-472		•		Stoff Dr.				
	T112A ROOM 6 FLOOR A1 *	0.0	0	-9	-277								
8	T112A ROOM 6 CEILING B1	0.0	4	5	-571			(1 3 m					
9	T112A ROOM 6 WALL H2	0.0	-8	-5	-845			of fra					
10	T112A ROOM8 WALL Q1	0.0	-28	-9	-703		0.3	£ ,					
11	T112A ROOM R2 * 8 WALL RZ	3.0	-16	5	-683								
12	T112A ROOM 9 FLOOR A3 *	1.5	0	-5	-337		. () 4						
H I	T112A ROOM 9 CEILING B4	0.0	-44	-5	-439	T. C. C.	6	N/A					
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				Electr	a Pertoanc	e Test Lo	og			
	Instrument Se	erial Number		Instrum	ent Efficienc	y Alpha	21.970		Beta	30.3%
	1255			Ins	trument Calib	ration Du	ie Date 9-16-	99	`	
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1. Source activity in cpm is equal to the source activity in dpm multiplied by the efficiency.

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RO SUPERVISOR PRINT NAM

2. Acceptable range is a + 20% (source activity in cpm multiplied by 0.8 or 1.2).

RO SUPER VISOR SIGNATURE

DATE

3. All counts are to bel minute in duration.

NOTE If the instrument will be used for alpha measurements only, the beta portion of the test log should be lined through. If the instrument will be used for beta only, then the alpha portion should be lined through.

---ROCKY FEATS ENVIRONMENTAL TECHNOLOGY SITE

SWIPE COUNTER PERFORMANCE LOG ALPHAR BETAR ALPHAR BETAR ALPHAR BETAR ALPHAR BETAR ALPHAR BETAR ALPHAR BETAR ALPHAR BETAR Calibration Due Date() ALPHAR BETAR ALPHAR BETAR ALPHAR BETAR ALPHAR BETAR ALPHAR BETAR ALPHAR BETAR ALPHAR BETAR Calibration Due Date() ALPHAR BETAR ALPHAR BETAR ALPHAR BETAR Calibration Due Date() ALPHAR BETAR Building: 549 Location: While Cortification Due Date() Alphar Betar Cortification Due D
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-ROCKY FLATSENVIRONMENTAL TECHNOLOGY SITE

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---ROCKY FLATSENVIRONMENTAL TECHNOLOGY SITE

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Survey Area: T112	Survey Unit:	Unit A	Building: T112A
Survey Unit Description	n: Office trailer	– Pre Dem	olition Survey

SURVEY PACKAGE COVER SHEET

Building Information		
Classification: Type 1 🗵 Type 2 🗌 Type 3	7	
Classification. Type 1 2 1 Type 2 1 Type 3 1		
Contaminants of Concern: Plutonium 🗵 Uranii	X 045 []	·
	um 🖂 Other 🗆	
Special Support Requirements	! Engineering	
Survey points randomly generated by Radiologic	cal Engineering	
Special Safety Precautions		
Per 3-PRO-165-RSP-07.02, "Contamination Mon	nitoring Requirements" and IWCP	
		•
Labeling Requirements		
Not Applicable		
Cumray Danka wa Insulana antatian		
Survey Package Implementation	1	
	•	
This survey package is ready for implementation	1,	,
D. A. BARNES	012	8-3-99
Radiological Engineer Printed Name	Radiological Engineer Signature	Date
	1/62-11	
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RE Peer Review Printed Name	RE Peer Review Signature	Date
Survey Package Closure		<u> </u>
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All required reviews are complete, and data ana	ducic recults most PLCP criteria. Survey n	ankana is
authorized for closure.	nysis results meet incor citiena. Survey p	rackage is
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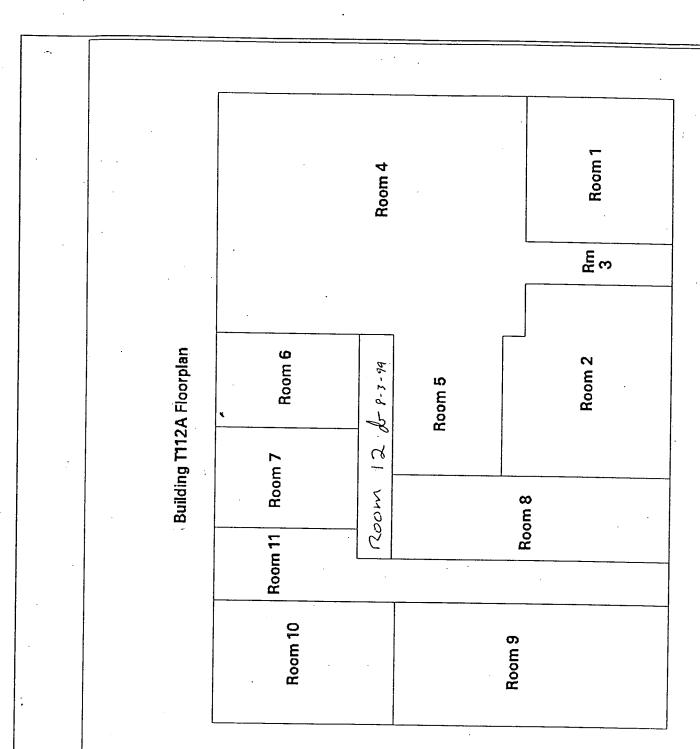


Survey Area: T112 Survey Unit: Unit A Building: T112A

Survey Unit Description: Office trailer - Pre Demolition Survey

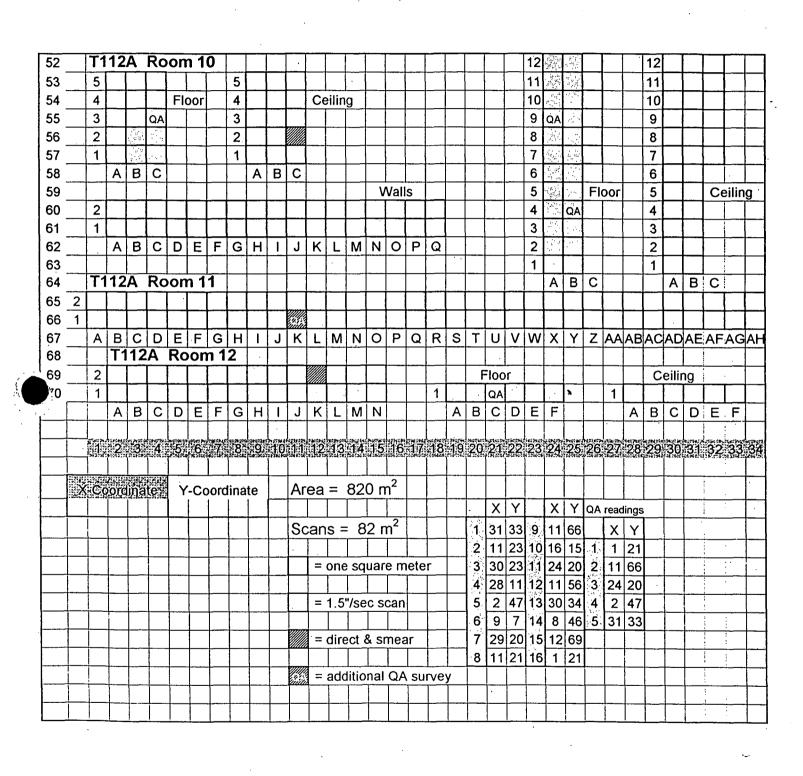
SAMPLING AND SURVEY INSTRUCTIONS

Measurement	Amount & Type	Comments
Surface Activity Measurements:	16 survey points (alpha & beta, direct & removable) on trailer surfaces.	Representative surveys of the area will be taken for total and removable, alpha and beta contamination in accordance with 3-PRO-165-RSP-07.02, "Contamination Monitoring Requirements" and IWCP The RCT will document the readings of all surveys performed.
	5 duplicate survey points for QA purposes.	QA survey points done by different RCT Duplicate smears will be taken at a directly adjacent location.
Surface Scanning:	10% scan surveys on trailer surfaces.	1 m ² scan surveys will be performed at locations indicated.
		Scan surveys of the area will be taken for alpha and beta contamination at a scan rate of 1.5 inches per second.
	5% duplicate scan areas for QA purposes.	QA scan areas done by different RCT
Media Samples:	None	None
Volumetric Samples:	None	None





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Appendix 3

Radiological Survey Data for Exterior of Trailer T112A (Survey Unit D)

APPENDIX 3 - Survey Unit D (Exterior T112A)

- Survey Unit D Data Summary
- MARSSIM Calibration/Verification Worksheet
- Total and Removable Radiological Survey Results
- Performance Test Logs
- Survey Package Cover Sheet
- Sampling and Survey Instructions
- Grid Survey Map
- Laboratory Radiochemistry Results
- Chain of Custody



Total Alpha



August 19, 1999

standard deviation: 24.67717

max:

90.0

Instrument background:

1 cpm

8/19/99 3 cpm

mean: 51.8125

10.0 min:

Instrument efficiency: 21.0 %

22.5 %

median:

50.5

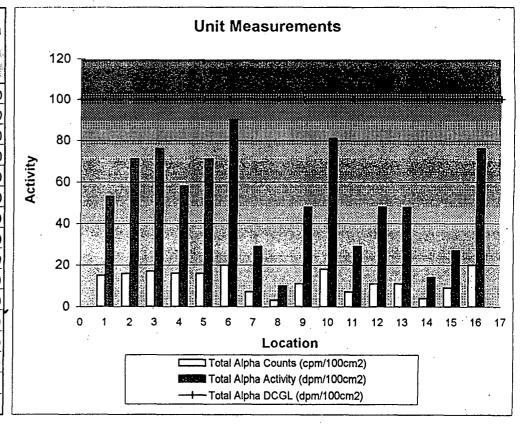
Instrument MDA:

33 dpm

08/10/99

48 dpm

	Surface	Lo	cation	Grid Location	Total Alpha Counts (cpm/100cm²)	Activity	100000000000000000000000000000000000000
1	Exterior		Roof	A2	15	53	100
2	Exterior		Roof	E3	16	71	100
3	Exterior		Roof	E5	17	76	· 100
4	Exterior		Roof	G3	16	58	100
5	Exterior		Roof	M8	16	71	100
6	Exterior		Roof	N7	20	90) 100
7	Exterior	2	Wall	12	7	29	100
8	Exterior	2	Wall	K3	3	10	100
9	Exterior	2	Wali	O3	11	48	100
10	Exterior	2	Wali	B1	18	81	100
11	Exterior	Ν	Wall	A1	7	29	100
12	Exterior	N	Wall	D1	11	48	100
1.3	Exterior	N	Wall	С3	11	48	100
14	Exterior	Ş	Wall	. E3	4	14	100
15	Exterior		Roof	(Ŕ5)	9	27	100
16	Exterior		Roof	A6	20	76	100

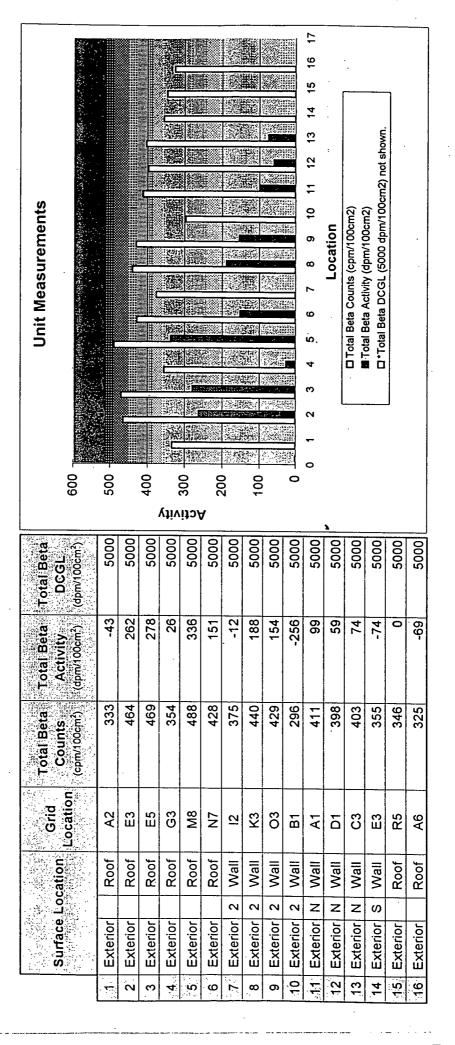


Total Beta

Survey D Unit Data Summary - T112A Exterior

August 19, 1999

				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
	294 dpm	288 dpm	Instrument MDA: 288 dpm			median: 66.5	median:
_:	30.4 %	32.4 %	Instrument efficiency: 32.4 %	-256.0	min:	73.3125	mean:
	346 cpm	379 cpm	Instrument background:	336.0	max:	153.1643	standard deviation:
	8/19/99	08/10/99					









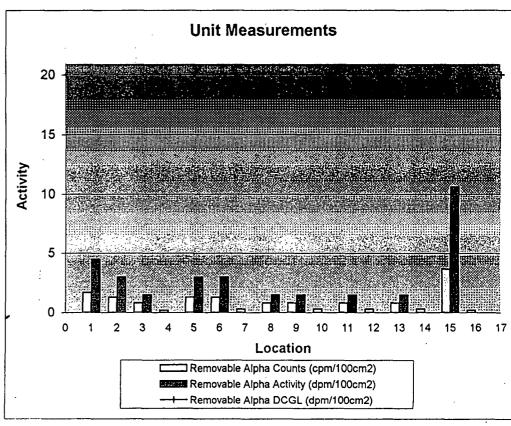
Removable Alpha

Survey D Unit Data Summary - T112A Exterior

August 19, 1999

					08/10/99	8/19/99	1
standard deviation:	2.688866	max:	10.6	Instrument background:	0.3 cpm	. 0.2 cpm	
. mean:	1.975	min:	0.0	Instrument efficiency:	33 %	33 %	1
median:	1.5			Instrument MDA:	8.3 dpm	7.5 dpm	

	Surface	Lo	cation	Grid Location	Removable Alpha Counts (cpm/100cm ²)	Alpha Activity	Removable Alpha DCGL (dpm/100cm ²).
-1	Exterior		Roof	A2	2	4.5	20
2	Exterior		Roof	E3	1	3	20
3	Exterior		Roof	E5	1	1.5	20
4	Exterior		Roof	G3	0	0	20
5	Exterior		Roof	M8	1	3	20
6	Exterior		Roof	N7	1	3	20
7	Exterior	2	Wall	12	0	. 0	20
8	Exterior	2	Wall	K3	1	1.5	20
9	Exterior	2	Wall	О3	. 1	1.5	20
10	Exterior	2	Wall	B1	0	0	20
11	Exterior	Ν	Wall	A1	1	1.5	20
12	Exterior	Ν	Wall	D1	0	0	20
13	Exterior	Ν	Wall	C3	1	1.5	20
14	Exterior	S	Wall	E3	0	0	20
15	Exterior		Roof	R5	4	10.6	20
16	Exterior		Roof	A6	0	. 0	20



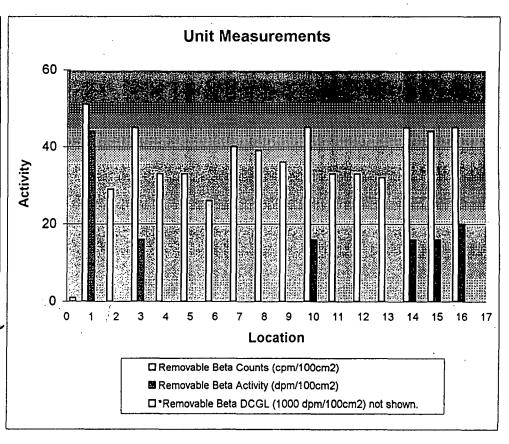


Survey D Unit Data Summary - T112A Exterior

August 19, 1999

	·				08/10/99	8/19/99
standard deviation:	29.49237	max:	44.0	Instrument background:	41 cpm	40 cpm
mean:	-10.75	min:	-60.0	Instrument efficiency:	25 %	25 %
median:	-14			Instrument MDA:	200 dpm	200 dpm

	Surface	Lo	cation	Grid	Removable Beta Counts	Removable Beta Activity	Removable Beta DCGL
				Location	The Company of Management	The second secon	(dpm/100cm²)
1	Exterior		Roof	A2	51	44	1000
2	Exterior		Roof	E3	29	-48	1000
3	Exterior		Roof	E5	45	16	1000
4	Exterior		Roof	G3	33	-28	1000
5	Exterior		Roof	M8	33	-32	1000
6	Exterior		Roof	N7	26	-60	1000
7	Exterior	2	Wall	12	40	-4	1000
8	Exterior	2	Wall	K3	39	-8	1000
9	Exterior	2	Wall	O3	36	-20	1000
10	Exterior	2	Wall	B1	45	16	1000
11	Exterior	Ν	Wall	A1	33	-32	1000
12	Exterior	Ν	Wall	D1	33	-32	1000
13	Exterior	Ŋ	Wall	С3	32	-36	1000
14	Exterior	S	Wall	E3	45	16	1000
15	Exterior		Roof	R5	44	16	1000
16	Exterior		Roof	A6	45	20	1000



Survey Area: T112 **Building:**

T112A

Survey Unit:

D (T112A Exterior)



Post Survey Removable Contamination Summary Statistics Calculation Verification Worksheet

Step 1:

Conduct a preliminary data review: (the mean, standard deviation, and median of the Unit D removable surface contamination data are calculated on the "Survey Unit D Data" sheet. Because all removable survey measurement results are less than DCGLw (alpha less than 20 dpm/100 cm², beta less than 1000 dpm/100 cm²), the survey unit clearly meets the removable contamination release criterion.

Step 2:

Select the statistical tests: The one-sample sign test was selected to assess the data, with α = 0.05 and β = 0.05. The number of sample points calculated was based on the use of this test.

The performance of the sign test was not necessary due to the fact that each individual net result was less than the DCGLw. Thus, the sign test would result in the rejection of the null hypothesis, and conclude that the median concentration of residual radioactivity in the survey unit is less than the DCGLw.

Step 3:

Verify the assumptions of the test: The assumed data variance, as indicated by the assumed standard deviation was verified by re-calculating the required number of smears with the ACTUAL survey unit standard deviation.

The actual removable survey standard deviations for Unit D are: α 2.69 β 26.7

Thus, the ACTUAL required number of measurements is as follows:

Δ/δ = (DCGL REMOVABLE - LBGR REMOVABLE)/ SD REMOVABLE

 $\Delta/\delta_{\text{transuranies}} = (20 \text{ dpm}/100 \text{cm}^2 - 10 \text{ dpm}/100 \text{cm}^2)/\frac{2.69}{2.69} \text{ dpm}/100 \text{cm}^2 = \frac{3.7}{2.69}$

 $\Delta/\delta = (DCGL_{REMOVABLE} - LBGR_{REMOVABLE})/SD_{REMOVABLE}$

 $\Delta/\delta_{\text{transuranies}} = (1000 \text{ dpm}/100 \text{cm}^2 - 500 \text{ dpm}/100 \text{cm}^2)/\frac{26.7}{26.7} \text{ dpm}/100 \text{cm}^2 = \frac{18.7}{26.7}$

Where:

is the relative shift or the resolution of measurements in units of measurement

DCGL REMOVABLE is the removable surface contamination derived concentration guideline value (DOE Order 5400.5 removable surface contamination limit equals 20 dpm/100cm² for transuranics per the T112A-C Pre

Demolition Survey Plan)

LBGR REMOVABLE

is the lower bound of the gray region - the lower bound of the range of values of the parameter of interest in a survey unit where the consequences of making a decision error is relatively minor (set equal

to value utilized in original sample size calculation).

SD REMOVABLE

is the ACTUAL standard deviation of the removable surface contamination measurements

Determine the Sign P value by looking up the relative shift (Δ/δ) in Table 5.4 of MARSSIM (the Sign P value is the estimated probability that a random measurement from the survey unit will be less than the DCGL when the survey unit median is actually at the LBGR). The Sign P value from Table 5.4, equals 0.998650 for a relative shift of 3.0 (The highest published value is utilized for conservatism).

Survey Area: T112 Building: T112A
Survey Unit: D (T112A Exterior)

Post Survey Removable Contamination Summary Statistics Calculation Verification Worksheet

Step 3: Continued

Determine the number of removable surface contamination measurements for the applicable survey unit using the following MARSSIM, Section 5.5.2.3 formula that is based on radioactive contaminants of concern not being present in the background:

$$\alpha$$
 $N = (1.645 + 1.645)^2 / 4(Sign P - 0.5)^2$
 $N = (1.645 + 1.645)^2 / 4(0.998650-0.5)^2 = \underline{10.9}$
 β
 $N = (1.645 + 1.645)^2 / 4(Sign P - 0.5)^2$
 $N = (1.645 + 1.645)^2 / 4(0.998650-0.5)^2 = \underline{10.9}$

Where:

1.645

is the alpha and beta decision error value (95% confidence) per the T112A-C Pre Demolition Survey Plan

Step 4: Increase N by 20% to allow for missing or invalid data points per MARSSIM, Section 5.5.2.3.

$$N = 10.9 * 1.2 = 13$$

Conclusion: Utilizing a conservative relative shift value of 3.0, a minimum of $\underline{13}$ α and β Removable Surface Contamination measurements were required in $\underline{\text{Unit D}}$.

Step 4:

Draw conclusions from the data: All measurements are less than $DCGL_w$. The minimum number of required removable survey measurements were collected. Thus, survey <u>Unit D</u> complies with the removable contamination release criteria.

D. A. BARNES	Ofen	8-19-99
Prepared By: Printed Name	Ragiological Engineer Signature	Date
H.B.ESTABROOKS	Michaele	8/19/99
Reviewed By: Printed Name	Radiological Engineer Signature	/ Date
——————————————————————————————————————		

Survey Area: T112 Building: T112A

Survey Unit: D (T112A Exterior)

Post Survey Tôtal Surface Activity Summary Statistics Calculation Verification Worksheet

Step 1:

Conduct a preliminary data review: (the mean, standard deviation, and median of the <u>Unit D</u> data are calculated on the "<u>Survey Unit D Data</u>" sheet. Because all total surface activity (TSA or TSC) measurement results are less than DCGL_W (less than 100 dpm/100 cm²), the survey unit clearly meets the TSA release criterion.

A graphical data review was also performed on the attached form. The posting plot indicated that spatial trends of elevated areas are not present. The histogram indicated that no isolated areas of elevated activity are present.

Step 2:

Select the statistical tests: The one-sample sign test was selected to assess the data, with $\alpha=0.05$ and $\beta=0.05$. The number of sample points calculated (see "Total Surface Activity Measurement Calculation Worksheet") was based on the use of this test. A local area background (LAB) value was subtracted from each gross measurement to calculate a net result, thus the sign test applies (sign test is typically applied only when the contaminant is not present in background).

The performance of the sign test was not necessary due to the fact that each individual net result was less than the DCGLw. Thus, the sign test would result in the rejection of the null hypothesis, and conclude that the median concentration of residual radioactivity in the survey unit is less than the DCGLw.

Step 3:

Verify the assumptions of the test: The assumed data variance, as indicated by the assumed standard deviation was verified by re-calculating the required number of samples with the ACTUAL survey unit standard deviation.

The actual total surface contamination standard deviations for Unit D are: $\alpha = 24.7$ $\beta = 153$

Thus, the ACTUAL required number of samples is as follows:

$$\Delta/\delta = (DCGL_{TSA} - LBGR_{TSA})/SD_{TSA}$$

 α $\Delta/\delta_{\text{transuranies}} = (100 \text{ dpm}/100 \text{cm}^2 - 50 \text{ dpm}/100 \text{cm}^2)/\frac{24.7}{24.7} \text{ dpm}/100 \text{cm}^2 = \frac{2.0}{2.0}$

 β $\Delta/\delta_{transuranics} = (5000 \text{ dpm/}100\text{cm}^2 - 2500 \text{ dpm/}100\text{cm}^2) / 153 \text{ dpm/}100\text{cm}^2 = 16.4$

Where:

 Δ/δ is the relative shift or the resolution of measurements in units of measurement

uncertainty

DCGL TSA is the total surface Activity derived concentration guideline value (DOE Order 5400.5 total surface

Activity limit equals 100 dpm/100cm² for transuranics and 5000 dpm/100cm² for uranium, per the

T112A-C Pre Demolition Survey Plan)

LBGR TSA is the lower bound of the gray region – the lower bound of the range of values of the parameter of

interest in a survey unit where the consequences of making a decision error is relatively minor (set equal

to the value utilized in the original sample size calculation).

SD_{TSA} is the ACTUAL standard deviation of the total surface Activity

Determine the Sign P value by looking up the relative shift (Δ/δ) in Table 5.4 of MARSSIM (the Sign P value is the estimated probability that a random measurement from the survey unit will be less than the DCGL when the survey unit median is actually at the LBGR). The Sign P value from Table 5.4, equals 0.998650 for a relative shift of 3.0 (The highest published value is utilized for conservatism).

Survey Area: T112 Building: T112A
Survey Unit: D (T112A Exterior)

Post Survey Total Surface Activity Summary Statistics Calculation Verification Worksheet

Step 3: Continued

Determine the number of TSA surface Activity measurements for the applicable survey unit using the following

MARSSIM, Section 5.5.2.3 formula that is based on Plutonium contaminants not being present in the background:

 α and β

 $N = (1.645 + 1.645)^2 / 4(Sign P - 0.5)^2$

 $N = (1.645 + 1.645)^{2}/4(0.998650-0.5)^{2} = 10.9$

Where:

1.646

is the alpha and beta decision error value (95% confidence) per the T112A-C Pre Demolition

Survey Plan

Sign P

equals 0.998650

Step 4: Increase N by 20% to allow for missing or invalid data points per MARSSIM, Section 5.5.2.3.

N = 10.9 * 1.2 = 13

Conclusion: Utilizing a conservative relative shift value of 3.0, a minimum of 13 Total Surface Activity measurements were required in Unit D.

Step 4:

Draw conclusions from the data: All measurements are less than DCGL_w. The minimum number of required TSA measurements were collected. Thus, survey Unit D complies with the TSA release criteria.

D.A. BARNET	QU2	8-19-99
Prepared By: Printed Name	Radiølogical Engineer Signature	Date
E-145ROOKS	Al Selataulis	8/19/95
Reviewed By: Printed Name	Radiological Engineer Signature	Date

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1	T112A ROOM 4 WALL A6*	<6.5	<200			21	
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3	T112A ROOM 8 WALL P2*	<6.5	200 .			23	
4	T112A ROOM 9 FLOOR A3*	<6.5	⊘ 000	1		24	
5	TI12A ROOM 11 WALL KI*	<6.5	<200			25	
6	T112A EXTERIOR WEST WALL BI*	<6.5	<200			26	
7	T112A EXTERIOR NORTH WALL A1*	<6:5	<200	1		27	
8	T112A EXTERIOR EAST WALL K3*	<6.5	<200	1		28	
	T112A EXTERIOR SOUTH WALL E3*	<6.5		1		29	
	T112A EXTERIOR ROOF A2*	<6:5	<200		1	30	N/A
II	T112B ROOM 1 CEILING B3*	<6.5	<200	N	IIA	31	
H	T112B ROOM 2 FLOOR H1*	<6.5	<200		T	32	
	T112B EXTERIOR SOUTH WALL E2*	<6.5	200		1	33	
ll	T112B EXTERIOR SOUTH WALL LI*	<6.5	200		11	34	
	TI12B EXTERIOR ROOF F1*	<6.5	√200		+	35	
	T112C ROOM I FLOOR CI*	<6.5	√200	·	11	36	
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5	T112	2A EXTER	RIOR ROO	F M8		<8.3	<200	71	336	QA	#14							<33	<288
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T112A exterior

ROCKY FLATS FNVIRONMENTAL TECHNOLOGY SITE

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	T and the second	l -	` 			Swipe	ULTS Location/Description				
wipe #	Location/Description Results in DPM/100CM ²	_	Peta Beta	Alpha	_	Swipe	Results in DPM/100CM ²	-	novable a Beta		otal Beta
1	T112A EXTERIOR EAST WALL C1			67	<288	QA	#9	X		<33	<28
2	T112A EXTERIOR EAST WALL F1			67	<288	QA	#14	I)XA	81	<28
. 3	T112A EXTERIOR EAST WALL G1			67	691	QA	#24			<33	<28
4	T112A EXTERIOR EAST WALL HI	\prod		<33	<288						
5	T112A EXTERIOR EAST WALL II			<33	<288	\Box	go parler (scans)				Ī
6	T112A EXTERIOR EAST WALL MI	Π		67	<288		29 "DEFIGUTIONS";				
7	T112A EXTERIOR EAST WALL N1	\prod		<33	<288		17 100 DPW/1 www2				
8	T112A EXTERIOR EAST WALL PI	\prod		48	<288		TENCE PLA				
9	T112A EXTERIOR WEST WALL BI*	T.T.		67	<288						
10	T112A EXTERIOR WEST WALL C1			48,	<288						
11	T112A EXTERIOR WEST WALL D1			<33	<288						
12	T112A EXTERIOR WEST WALL E1			67	<288	. :	i				
13	T112A EXTERIOR WEST WALL F1			43	<288						
14	T112A EXTERIOR WEST WALL G1*			52	<288						
15	T112A EXTERIOR WEST WALL H1	N	YA .	<33	<288						Γ
	T112A EXTERIOR WEST WALL II			81	<288		ΝχΑ				
	T112A EXTERIOR WEST WALL J1		1	67	<288		/>				
18	T112A EXTERIOR WEST WALL K1		1	52	395						
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20	T112A EXTERIOR WEST WALL MI		\sqcap	48	<288						
21	T112A EXTERIOR WEST WALL NI	1.	1	<33	688				1		
22	T112A EXTERIOR WEST WALL OI	1	\sqcap	48	<288						\Box
23	T112A EXTERIOR WEST WALL P1			67	<288				1		\Box
24	T112A EXTERIOR ROOF A2*	1-	\sqcap	95	389	II	,		1		
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RECRUM

T112 A,B & C resurvey MDA

RS FORMS 07.02-01

		RO(CKYFL	ATS E	NVI	ROI	VM)	EN1	AL	TECHNOLO	<i>IGY SITE</i>				
		INSTRU	MENT D	ATA											*********
Mfg.			Eberline				Ì	Sur	ey T	ypeCC	<u>NTAMINAT</u>	CION SU	RVF	Y	ļ
Model					7		•	Buil	ding:					-	
	835			_	$\overline{}$		j	1-	. •						
Cal Du	e 10/26/99	Cal Due	10/13/99	Cal Due	, N	/A_	1	Purp	ose:	Resurvey	per R.E. (M.	ARSSIM	Sur	(ev)	
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	6.5 dpm														$\neg \neg$
-				_			•	Date	: :	08-19-99	Time): :	11:00)	
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	cy <u>25 %</u>						-		<u> </u>	Print name	Sig	gnature		Fm	p. #
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5 T1	12A ROOF	4.2		<1.	s <200	(53)	<294			•					
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 ALPHA REMOVABLE
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8-24-99

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Mfg.			Eberline			<u>. i</u>			Sury			_CON	<u>TAM</u>	INATION	V SU	RVE	Y	
Mod			SAC-4			:			Build	_				Г112с				
Seria			824	Serial#		<u>\</u>		r						0 Yard				
	Due 10/26/99					N/	<u>A</u>	ļ	Purp	ose:		MAR	<u>SSIM</u>	Release	Surve	Y_		
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1	T112C ROOM	1 FLOOR	B4		0.0	36	45	257	QA	#2				*			9	239
	T112C ROOM			 	0.0	8	27	281	QA	-		- 					31	-245
	T112C ROOM				.5	-20	9	-6	QA						N	A	9	-215
	T112C ROOM				.5	-20	22	72	QA						Ï	7	9	-9
	T112C ROOM				0.0	-16	31	-230	QA							-/	108	75
II	T112C ROOM				0.0	4	18	-137	×-	,,,,,	. :						100	1,5
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f	T112C ROOM				0.0	8	36	-224		ļ		\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	6-14 ·		-			
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Bkg. Effici			0.1 cpm 33 %			+		RW	Р#•			N/A				
MD	-	n MDA	6.5 dpm	-		-			• "• -			11/2				
						 -	•	Date	: :	08-05-99		Time:		14:30)	
Mfg.	Eberline	Mfg	Eberline	Mfg	NE	tech	•		-			•				
Mod	el BC-4	Model_		Model_	Ele	ctra		RCI	`:	Hersey		1/erse	~			
Seria		_ Serial#		Serial#_		327_				Print name		Signat	ure			
11	200000000000000000000000000000000000000	Cal Due		_								0	•			
Bkg.		n Bkg	41 cpm				-	RCI	<u>: </u>	Espinoza		220CC	1040	<u> </u>		
Effici	-	_	 .	Efficiency						Print name		Signat	ure			
MD	A 200 dpi	n MDA	200 dpm	MDA_	33	285	dpm	<u> </u>								
PRL	#.				•			!								
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	Alpha r	emovable w	as a two m	inute co	int.		•									
				:	<u> </u>	UR	VEY	RES	ULTS	<u> </u>						
Swipe	Lo	cation/Descr	iption	Ren	ovable	To	otal	Swipe	· ·	Location/D	escriptio	n	Reme	ovable	To	otal
: #	(Re	sults in DPM/10	00CM ²)	Alph	Beta	Alpha	Beta	#		(Results in DP	M/ 10 0CM	1²)	Alpha	Beta	Alpha	Beta
1	T112C ROOM	1 FLOOR	B4 ·	<6.5	√ 200	45	<285	QA	#2	•					<33	<285
2	T112C ROOM	1 FLOOR	C2 *	<6.5	<200	<33	<285			1			\prod		<33	<285
3	T112C ROOM	1 1 WALL	D1	<6.5	<200	<33	<285	QA	#11	j			Ŋ	XA.	<33	<285
4	T112C ROOM	1 WALL	E2	<6.5	<200	<33	<285	QA	#13	<i>.</i>					<33	<285
5	T112C ROOM	12 WALL	K2	<6.5	√200		<285	QA	#16						108	<285
6	T112C ROOM	13 WALL	E1 ·	<6.5	<200	<33	<285									
7	T112C ROOM			<6:	<200	<33	<285	<u> </u>	\triangle				<u> </u>		<u> </u>	
8	T112C ROOM	13 WALL	L1	<6.5	<200	<33	<285	 					<u> </u>			
9	T112C ROOM	4 WALL	E2	<6.5	<200	<33	<285	<u> </u>					<u> </u>		<u> </u>	
1	T112C ROOM			<6.5	<200	36	<285	 					ļ			<u> </u>
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Date	e Reviewed:	8/13	/44 RS S	Supervis	ion:	5	1	m	e/h	al 1	M/K		id .	//		
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wipe	Location/Description		vable			Swipe	Location/Description Results in DPM/100CM ²	—	ovable	-	otal
#	Results in DPM/100CM ²	Alpha	Beta	 		#		Alpha	Beta	Alpha	1
	T112C SOUTH WALL SCAN C1	-\		67			#5 SCAN	 \ 		72	34
	T112C SOUTH WALL SCAN E1			49	352		#12 SCAN	N/A	<u> </u>	108	<2:
	T112C SOUTH WALL SCAN G1	++-		<33	<285				├—	 	┝
_	T112C SOUTH WALL SCAN II	++		40	<285				├—	 	├
	T112C SOUTH WALL SCAN J1 *	$+\lambda$	<u>. </u>	81	310		<u> </u>	_	 	├	├
6	T112C SOUTH WALL SCAN K1	N	<u>/A</u>	49	<285	 		+	-	₩	├
7	T112C SOUTH WALL SCAN L1		$ar{-}$	<33	<285				 	 	├
8	T112C SOUTH WALL SCAN O1	 	-\	<33		╟──	<u> </u>		-	 	├
9	T112C SOUTH WALL SCAN P1	-	 	67	<285			-	 	├	╁
	T112C SOUTH WALL SCAN NI		\vdash	<33		()		_	╁	 	╁╴
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	Instrument S	erial Number		Instrum	ent Efficiency Alph	22.2%		Beta	30.1%
	168	2		Ins	trument Calibration I	ue Date 2-4-	00		
Source Serial Nu	ımber	Calibration Due Da	ate	Source A	ct. (dpm)	Source Acct. (cpm)	Source A	cceptable Range (sq)
68014	tlac.	W/A			4830	5512		4410	to 6615
						1011			to Co E
6039	27 B	NIA	· · · · ·	<u> </u>	22723	6840		5972	to BZOB
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Date	ALPHA BKGD3	ALPHA Reading (Corrected cpm)3	ALPHA Pass/Fail	BETA Bkgd 3	BETA Reading BETA (Corrected Pass/Fa	RCT Employee Number	RCT N (Print		RCT Signature
815 129	0	4950	Pass	486	6555 Pass		ly	rho2	mees
81 10199	1	5010	BASS	526	6008 PAR		6. Horse	white	Speralens
814199		5/10	PASS	481	6392 Par		6. H45.		Stagning
8/12/99		5170	PAGG	502			G 1405		Malana Setony
8113199	2	4950	RASS	507	6987 PAGE		G doss	ENKAM	Stranger Street
8/16/99	2	4940	Pass	437	6484 Pass			sw2	- Marie
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2. Acceptable range is a + 20% (source activity in cpm multiplied by 0.8 or 1.2).

3. All counts are to be 1 minute in duration.

NOT If the instrument will be used for alpha measurements only, the beta portion of the test log should be lined through. If the instrument will be used for beta nly, then the alpha portion should be lined through.



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- International Property of the Property of th		UMENT D			ila =							10000
	AIC Mfg.		Mfg.		Survey T			a Spectro	scopy			
	P-2 Model		Model		Building:_		112A					
	146 Serial#		Serial#		Location:							
	t-99 Cal Du		Cal Due _	 -	Purpose:	K2F/F	CF RCM	Complia	nce			
	<u>I/A</u> Bkg	17 **	Bkg				. 1					
	VA Efficience	·y	Efficiency		RWP #: _		N/B					
MDA N	MDA MDA	$-\!$	MDA	-07/					~~ .	_	_	
	> 40	Y		^/	Date:	0	7/20/99		Time:	$ \frac{1}{1}$	Day	_
Mfg	—/ Mfg.	' 	Mfg.		200	_		. ,	00	Λ V		
Model	Model		Model	- 	RCT:		E. Read		ty CX	Leux.		
Serial#	Serial#		Serial#	/		Print	t name		Sign	ature		
Cal Due	Cal Du	e	Cal Due	/	n cm		.1.	,		,		
Bkg/	Bkg	- -	Bkg.	 	RCT:		4/A	/	N/			
Efficiency /	Efficienc	у	Efficiency			Print	t name		Sign	ature		
MDA /	MDA		MDA /									
ODY#.												
PRL#:	Roth Court	Times	.60 mins T-	both sassa 4	etector col-	mnot	SP 11100 0=	nrov 1/1	6th to 1	/Q+h :		
Comments:				both cases d	,		or was ap	prox. 1/1	oin to 1	/oun in.		
	advove sam	pie surrace,	wnich migh	t skew specti	um to the le	ાા.						
		A**		SURVEY	RESULTS	3						
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				990720.SPE REC# 3 OF	3	MEU>	2	3 , 4	. 5 6 1.9	7 8	9 :	10
				1	J	}		4.5	+.9 	•		
				MIN: MAX:	17 17	ł		3.9				
				RANGE: SCALE: MIN to	17 MAY	}						
•				Cursor MEV:		}				•		
				COUNT:	7							
				Pu239 Cts: Radon Ctc:		. }			5.3			
•		•		Gross Cts:		1	2.3		3.3			
990720.SPE_	ME	2.3	3 4 5	AP-2 SN# A	A146		,,					
REC# 2 OF	3	2.3	4.5	Item Descri	ption: Metal							
MIN: Max:	9		7.5	roof on T11		,					8.4	
RANGE:	8			Location#		ł			6	.2	1	
SCALE:MIN to Cursor MEV:											111	
COUNT:	4.5 8											
Pu239 Cts: 3			3.5	5.1								
Radon Cts: 1				/								
Gross Cts: 12				/	8.4							
AP-2 SN# A	.146											
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Item Descrip				5.8	•		•			•	٠.	
roof on T112	LA											
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Date Reviewe	ed: <u>7-21</u>	<u>'-99</u> RS	Supervision	n: _ <i>/_NC</i>	poper			MOOD	w			
	_====	<u>.</u>			Print Name) · ——=	- , - ,	, 'S	ignature			
	7-21	-99		D.A.	BAIRNES	5	1 £	182				
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(S) floppies Cursor MEV: 5.8 Esc to QUIT C C (CCB) 6 E (ECB) t - 0-9 Zoow Keas: sontce. Np Dn Howe End Record Keys: above surface of the same with probe approx. 1/8th in This spectrum was taken SCUTE: WIN 40 BUNCE: WUX: WIN: XVW 669 669 0 BEC# S OF 01 WEn> COUNT: Cursor Meu: Esc to QUIT C C (CCH) 6 E (ECH) t - 0-9 Zoow Kens: sonice. No Do Home End Record Keys: surface of the plated with probe directly on the This spectrum was taken BEC# 1 OF 990721.5PE 10 3 **WEA>** Drawing Showing Survey Points KYDIOTOCICYT ZYŁELK KOCKK ETVLZ ENAIKONWENLYT LECHNOTOCK ZILE

S-9A

Plated Source

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Мо	del	SAC-4	Model	SAC-4	Mode	el	EI	EC.	ΓRA	Buil	ding:_			T-11	2 A						
Ser	ial#	861	Serial#	842	Seria	ıl#	16	65		Loca	ation:			Ro	of						
Cal	Due	12/7/99	Cal Due	12/9/99	Cal I	Due	9/19	9/99		Purp	ose:		P	re-Job	Surv	/ey					
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										Date	ð: [']		07/20/	99		Ti	ime:	<u> </u>	3π)	
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25				11/20/99		_										l]				
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RS FORMS 07.02-01 ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE **INSRUMENT DATA** NE Survey Type: CONTAMINATION Mfg. EBERLINE Mfg. EBERLINE Mfg. Model SAC-4 Model SAC-4 Model **Building:** T-112 A **ELECTRA** Location: Serial# Serial# 842 Serial# 1425 Roof 861 Purpose: 12/9/99 Cal Due 8/25/99 Cal Due 12/7/99 Cal Due Post-Job Survey Bkg. 2/548 0.3 0 Bkg. Bkg. RWP#: Efficiency 0.33 Efficiency 0.33 Efficiency .21/.316 44/366 MDA <20 MDA MDA <20 1500 Date: Time: 07/21/99 Mfg. EBERLINE Mfg. EBERLINE Mfg. RCT: S. Jablkowski Model BC-4 Model BC-4 Model Print name Serial# Serial# Serial# 704 702 Cal Due 9/25/99 Cal Due 11/20/99 Cal Due RCT: Bkg. 43 Bkg. Emp. # 0.25 Efficiency 0.25 Signature Efficiency Efficiency MDA <200 MDA <200 MDA PRL#: Comments: Post-Job survey on roof for sampling. (SEE MAP) Map SURVEY RESULTS Location/Description Removable Total Location/Description Removable Total Alpha Beta Alpha Beta Alpha Beta Alpha Beta Results in DPM/100sq cm Results in DPM/100sq cm 102 <366 See Map <200 <20 <200 24 <366 **⊘**20 <200 12 ⊲366 <20 **⊘**200 114 <366 5 6 7 8 9 11 12 13 14 15 16 17 18 19

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te Reviewed: 1/21/19 RS Supervision: 5 Angload
Print Name

Serial# A146 Serial# Serial# Location: Metal Roof Cal Due Oct-99 Cal Due Cal Due Purpose: RSP/RF RCM Compliance Bkg. N/A Bkg. Bkg. Efficiency N/A Efficiency Efficiency MDA MDA MDA Mfg. Model Model Model Serial# Serial# Serial# Print name Signature Cal Due Bkg. Bkg. RCT: N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A	ROCKY FLATS ENVIR	PANMENTAL TECHNOLOGY SUPE
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Efficiency MDA Befficiency MDA MDA Print name Signature Emp. # PRL#: Comments: Both Count Times were 60 mins. In both cases detector columnator was approx. 1/16th to 1/8th in. abvove sample surface, which might skew spectrum to the left. SURVEY RESULTS SURVEY RESULTS SURVEY RESULTS Page 28.5FE NEW 3 of 3 NEW 4.5 6 7 8 9 18 NEW 23 000 17 18 18 19 18 18 18 18 18 18 18 18 18 18 18 18 18		
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PRL #: Comments: Both Count Times were 60 mins. In both cases detector columnator was approx. 1/16th to 1/8th in. abvove sample surface, which might skew spectrum to the left. SURVEY RESULTS 998728.SPE 80		Print name Signature Emp. #
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abvove sample surface, which might skew spectrum to the left. SURVEY RESULTS 990728.SPE NEU 2 3 4 4.5 6 7 8 9 10	PRL #:	
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998728. SPE	abvove sample surface, which might skew	w spectrum to the left.
998728. SPE		
MIN: 17 Ref SCALE:MIN to MAX Cursor MEV: 2.3 GOUNT: 7 Pu239 Cts: 32 Radon Cts: 11 Gross Cts: 121 AP-2 SN# A146 Item Description: Metal roof on T112A Location# 1 S. A. A. A. A. A. A. A. A. A. A. A. A. A.	<u>St</u>	JRVEY RESULTS
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Survey Area: T112	Survey Unit: Unit D	Building: T112A
Survey Unit Description	n: Office trailer – Pre D	Demolition Survey

SURVEY PACKAGE COVER SHEET

Building Information		
Classification: Type 1 X Type 2 Type 3		
Classification. Type 1 E2 Type 2 E2 Type 3		
Contaminants of Concern: Plutonium 🗵 Ura	onium X Othor C	
		<u> </u>
Special Support Requirements Survey points randomly generated by Radiology		
Survey points randomly generated by Radiolog	gical Engineering	•
Special Safety Precautions		
Per 3-PRO-165-RSP-07.02, "Contamination M	Monitoring Requirements" and IWCP	
Labeling Requirements		
Not Applicable		
Survey Package Implementation	on	
This survey package is ready for implementati	ion.	
D. A. BARNES	DA.	8-3-99
Radiological Engineer Printed Name	Radiological Engineer Signature	Date
H-B-ESTABROVES	A Salalaly	8/3/99
RE Peer Review Printed Name	RE Peer Review Signature	Date
Survey Package Closure		
	• .	
All required reviews are complete, and data are authorized for closure.	nalysis results meet RLCP criteria. Survey p	ackage is
	01-	0/ 10 00
D. A. BARNES	DV12/2-	8-19-99
Radiological Engineer Printed Name	Radiological Engineer Signature	Date
Es MBROOKS	Mortalany	8/19/99
RE Manager Printed Name	RE Manager Signature	Date

Survey Area: T112	Survey Unit: Unit C	Building: T112C
Survey Unit Description	n: Office trailer – Pre Dem	olition Survey

SAMPLING AND SURVEY INSTRUCTIONS

Measurement	Amount & Type	Comments
Surface Activity Measurements:	16 survey points (alpha & beta, direct & removable) on trailer surfaces.	Representative surveys of the area will be taken for total and removable, alpha and beta contamination in accordance with 3-PRO-165-RSP-07.02, "Contamination Monitoring Requirements" and IWCP The RCT will document the readings of all surveys performed.
	5 duplicate survey points for QA purposes.	QA survey points done by different RCT Duplicate smears will be taken at a directly adjacent location.
Surface Scanning:	10% scan surveys on trailer surfaces.	1 m ² scan surveys will be performed at locations indicated.
		Scan surveys of the area will be taken for alpha and beta contamination at a scan rate of 1.5 inches per second.
	5% duplicate scan areas for QA purposes.	QA scan areas done by different RCT
Media Samples:	None	None
Volumetric Samples:	None	None

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September 23, 1997

Post-It Fax Note 7671 Date 7 26 | # of pages 2

To Dave Barnes | From Barnes |
Co./Dept. | Co.

Phone # 845 |
Fax # 8048 | Fax # 801

Alan Parker Vice President Closure Projects Int. Kaiser-Hill, L. L. C.

RADIOLOGICAL REQUIREMENTS FOR RELEASE OF THE 690 AND 891 TRAILER CLUSTERS - DJH-028-97

At your request, Radiological Engineering is documenting the series of events that have taken place with the radiological surveys and laboratory analysis performed on the 690 Trailer cluster as well as the 891 trailers. Based on the following information, Radiological Engineering will proceed with Property/Waste Release Evaluations (P/WRE) for the unrestricted release of the 690 Trailer cluster and the 891 Trailer cluster. (The 690 trailer cluster is composed of trailers T690 A, B, C, D, E, F, G, H, I, J, K, L, M, T371G and T444A, and the 891 trailer cluster includes trailers T891 A, L, M, N and T900E.)

Starting In early summer, Radiological Engineering approved survey plans to survey the interior of the 690 Trailer Cluster and the 891 trailer cluster. The survey frequency was based on guidance from NUREG 5849, "Manual for Conducting Radiological Surveys in Support of License Termination" and the guidance in MARSSIM, "Multi-Agency Radiation Survey and Site Investigation Manual". Based on process history, surveys were only required on the Trailer interiors and on certain exterior aquipment including the T690K exhaust ducting.

In August, 1997, an RCT performed surveys on the T690K exhaust ducting and found no fixed or removable contamination above the release limits. After the RCT performed the duct survey, he placed his survey instrument on an exterior rusted metal support and noticed elevated alpha activity. This led to additional exterior surveys which also detected elevated alpha activity averaging around 200 dpm/100cm² fixed with no removable which would be above the unrestricted release criteria assuming the alpha activity was from transuranics (e.g. plutonium).

At this point Radiological Safety characterized this elevated area with a hand held alpha analyzer (SAIC Model AP-2) to determine the isotope. The spectrum revealed a predominant peak in the 5 MeV energy range which is indicative of plutonium. Additional characterization surveys of the 690 trailers with the AP-2 also indicated plutonium. This led to additional surveys of both the 690 and 891 trailers which all had elevated alpha activity with the roots and rusted horizontal areas having the most activity. Radiological Safety then launched an extensive effort to bound the size of the elevated alpha activity measurements across the site. Elevated readings were measured on the roofs of the 891 trailers. Days later, surveys on a cargo container near T130B revealed elevated alpha activity in the 200 dpm/100cm² range.

Given the wide spread nature of this phenomena, and the fact that it just didn't make sense that the origin of this elevated activity could be from Rocky Flats activities, metal roof samples were taken from the 690 trailers and sent to the B559 labs and B881 labs on-site and to an offsite lab in Charleston, South Carolina. Attached are the results from these laboratories. The final conclusions from all of the labs is that the

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Alan Parker September 23, 1997 DJH-028-97 Page 2

radioactivity on the roofing material was from naturally occurring radioisotopes. The attached laboratory results document this conclusion. The energy level of some of the naturally occurring isotopes is very close to that for plutonium-239 (239Pu); for example Polonium-210 (210Po) has an alpha energy of 5.3 MeV and the alpha energy for 239Pu is 5.1 MeV. With the AP-2 it is evidently very difficult to discriminate between 239Pu and 210Po. The laboratory analysis process, in contrast to the AP-2 field acquisition, is performed in a controlled laboratory environment, has a much higher degree of resolution and therefore allows the lab to make this discrimination.

Based on the laboratory data, the isotopes are not uranium, plutonium or americium. The laboratory results indicate that the source of this activity is from isotopes found in naturally occurring decay chains. Many of the isotopes are short lived, and the total activity is below release criteria. Therefore, Radiological Engineering will proceed with the issuance of the PWREs which will provide the final authorization to release the trailers. The interior of the 690 and 891 trailers, however, are still required to be surveyed in accordance with the original decommissioning survey plans. This laboratory data also supports the original Radiological Engineering determination that the 690 trailer exteriors could be free released without radiological surveys based on process history. This same process history applies to the 891 trailer exteriors which, based on their age, location and usage, can be free released without exterior surveys. It should also be noted that not all trailers and buildings fall into the category of "no surveys required" for the exterior. Each trailer/building is evaluated on a case by case basis.

Based on all of these recent findings, Radiological Engineering developed a corrective action plan for future AP-2 usage. Radiological Engineering suspended the use of the AP-2 on 9/18/97 and briefed the Radiological Engineering department on the recent AP-2 findings as the first step of this corrective action plan. This action is necessary to prevent further field misinterpretation of AP-2 readings. The action plan also requires a revision to the AP-2 procedure and requires review of the 100 Performance Measures (JPM) in the AP-2 training package for evaluating and approving AP-2 results. The AP-2 will not be reauthorized for use until the conditions in the action plan are met. In addition, Radiological Engineering will continue to investigate the mechanism that is causing this elevated activity to deposit on the trailers.

Please contact Jeff Barroso at Extension 8451 If you have any additional questions.

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Don Harward
Division Manager
Radiological Safety

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APR 23 1998

AME:TAD:PPP:02637

Application of Surface Contamination Guidelines from DOE Order 5400.5

Wynn A. Harding, Vice President Safety Systems and Engineering Kaiser-Hill Company, L.L.C.

Reference: Ltr, Harding to Lowe, 98-RF-00974, subject: same, dtd 3/10/98

The Kaiser-Hill Company, L.L.C. (Kaiser-Hill) requested approval of the interpretations for surface contamination as set forth in the reference above. The Rocky Flats Field Office concurs with your interpretation because the conservative nature of the proposed approach is consistent with the guidelines specified in the Final Multi-Agency Radiation Survey and Site Investigation Manual.

> David C. Lowe Assistant Manager for Engineering

P. Psomas, TAD, RFFO

COR CONTROL
ADMN RECORD PATS/T130G

Reviewed for Addressee Corres. Control RFP

Ref Ltr. #

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OVERLID, T. W.

PATTERSON, J. B.

ROBERTS, R. S. VAUGHN, T. L. KAISER•HILL

March 10, 1998

98-RF-009

David C. Lowe Assistant Manager for Engineering DOE, RFFO

APPLICATION OF SURFACE CONTAMINATION GUIDELINES FROM DEPARTMENT OF ENERGY ORDER 5400.5 - WAH-064-98

Kaiser-Hill requests that DOE, RFFO approve Kaiser-Hill's interpretation of Department of Energy (DOE) Order 5400.5, Figure IV-1, "Surface Contamination Guidelines." This interpretation concerns how a surface can be evaluated with respect to the "Allowable Total Residual Surface Contamination" (ATRSC) in Figure IV-1.

Historically , compliance with the ATRSC limits has been met at the Rocky Flats Environment Technology Site (RFETS) by surveying items or areas with direct reading radiation detection equipment. This radiation detection equipment can only detect radioactive material located directly on a surface. Therefore, it currently needs to be assured that all radioactive material present on the surface of the item, or area being surveyed to show compliance with the ATRS limits. In some instances radioactive material may have penetrated into the surface of a material to a limited degree (e.g., a spill of radioactive material in liquid form on a concrete floor), or radioactive material may be present in a material on a surface (e.g., radioactive material present in a coating of paint). In these cases, the current methods for assuring compliance with the ATRSC limits in DOE Order 5400.5 are not sufficient. Alternative method need to be developed to assure compliance.

Kaiser-Hill believes that the ATRSC limits may be applied to materials that contain radioactive material if this radioactive material is evaluated with a conservative approach that is appropria to the situation. The following outlines this approach:

- 1. For a given surface type (i.e., concrete surface, paint sample, etc.), a sample will be taken of the surface to the depth of the radioactive material present (i.e., to a 1 cm depth of the concrete, to the depth of the paint, etc.)
- The sample will be taken from a defined area of the surface (i.e., from a 10 cm X 10 cm area, from a 10 inch X 10 inch area, etc.)
- 3. The sample will be analyzed for radioactive material indicative of RFETS (i.e., plutonium, americium, uranium, etc.)

CORRES.CONTROL X
ADMIN RECRD/080
TRAFFIC
PATS/T130G

CLASSIFICATION:

UCNI
UNCLASSIFIED
CONFIDENTIAL
SECRET

AUTHORIZED CLASSIFIER

SIGNATURE:

MA AMU

Date: 3/1/98

IN REPLY TO REP CC NO.:

N/A
ACTION ITEM STATUS;

PARTIAL/OPEN CLOSED

LTR APPROVALS:

ORIG. & TYPIST INITIALS: RSR:cjb

RF-46469 (Rev. 2/28/97)

Kaiser-Hill Company, L.L.C.

Courier Address: Rocky Flats Environmental Technology Site, State Hwy. 93 and Cactus, Rocky Flats, CO 80007 + 303.966.700

Mailing Address: P.O. Box 464, Golden, Colorado 80402-0464

David C. Lowe March 10, 1998 98-RF-00974 Page 2

- 4. The amount of radioactive material in the sample is then uniformly distributed over the sample area so that the amount of radioactive material present in the sample is in the units of dpm/100cm²
- 5. This quantity is then compared with the ATRSC limits.

This approach is conservative and appropriate in that all the radioactive material contained in the surface is concentrated at the top of the surface and then compared with the ATRSC limits. Therefore, the "Total" amount of radioactive material present is being compared with the ATRSC limits. Also, this is conservative and appropriate since it is much harder for the radioactive material contained in a surface to come into contact with an individual than if the radioactive material is present on the surface. This approach is also consistent with the approach in Section 7.5.2.2, "Sample Content," of the Final MARSSIM (Multi-Agency Radiation Survey and Site Investigation Manual).

Kaiser-Hill believes that the above approach should be used when evaluating radioactive material that is contained in a surface. Kaiser-Hill requests that DOE, RFFO approve Kaiser-Hill's approach to complying with DOE Order 5400.5, Figure IV-1 by March 30, 1998 to support the Building 123 & 779 Deactivation and Decommissioning projects.

If you have any questions or comments, please contact Rick Roberts at Extension 4869 or Jeff Barroso at Extension 8451.

Wynn A. Harding

Vice-President \

Safety Systems & Engineering Kaiser-Hill Company, L.L.C.

RSR:cjb

Orig. and 1 cc - David C. Lowe

CASE NARRATIVE RIN 99A8967 Laboratory Report Identification Number: 1643 PSA Module RC01B.3

August 9, 1999

I. Introduction

On April 27, 1999, four waste samples, (RIN 99A8967), were received for analysis at the Sanford Cohen and Associates (SC&A) Southeastern Environmental Laboratory, located in Montgomery, Alabama. The chain-of-custody accompanying the samples requested they be analyzed on a "rush" basis. The samples were analyzed in accordance with Kaiser-Hill specifications stated in the "Statement of Work for Analytical Measurements, Isotopic Determinations by Alpha Spectrometry, Module RCO1-B.3", dated April 24, 1998, and Modification 09, dated July 16, 1998.

II. Analytical Methodology

The radioanalytical results reported for each sample include the site and laboratory sample identification numbers, collection date, method of analysis, and the quality control samples that were analyzed concurrently. All samples were analyzed by an Eichrom Industries, Inc. extraction chromatography method (ACW03) for isotopic uranium, plutonium, and americium.

III. Analytical Results

Deficiencies

See Reanalysis.

Metrix Interferences

There were no indications of matrix interference.

Dilutions

No dilutions were required.

Detection Limits

The required detection limits (RDL) were met for all sample analyses.

PRELIMINARY INFORMATION

Reanalysis

The Am-243 tracer recovery in samples KH199-1643-03, KH199-1643-04 was less than the 20% specified in the SOW. The samples were reanalyzed beginning with sample preparation and the results were acceptable. The Original and Reanalysis Sample I.D. are listed below.

Original Laboratory Sample LD.	Reanalysis Laboratory Sample LD.	Analysis Type
KH199-1643-03	KH199-1643-03B	Am-241
KH199-1643-04	KH199-1643-03B	Аш-241

Deviations from Protocols

There were no deviations from the written protocols and analytical methods.

Contacts with the CTR

There were no contacts with the contract technical representative (CTR) regarding these samples.

IV. Quality Control

Site Samples Used for Quality Control Samples:

Site Sample Number	Laboratory Sample Number	Type of Quality Control Analysis Sample
Laboratory Type II Water	SCAQC-1643-LCI	Laboratory Control Sample
99A8967-001.002 T112 A Contor	SCAQC-1643-LD1	Laboratory Duplicate Sample
Laboratory Type II Water	SCAQC-1643-P8	Preparation Blank

The analytical results of all quality control samples met the acceptance criteria specified in the SOW.

Sincerely,

Joe Stinson

Laboratory Manager

PRELIMINARY INFORMATION

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Radioanalytical Results

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Project Name: Kalacr-Hill Chain-of-Custody Number: 98A89878002

Mahric Weste

8to Sample ID: 001.002

Other Sample ID: T112A CENTER

Collection Date: 7/21/99 Batch Number: 1643 Date Received: ZZZZSS Laboratory Code: SCA

		Laboratory	Activity	2 or Counting Error	Total Error	MDA
Mothod Number	Radionuolide	Samolo ID	(pCVq)	(pCWd)	_(pGi/a)_	(pCl/a)
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ACW03	U-235	KH199-1643-01	0.016	0.031	0.031	0.042
ACW03	U-238	KIH189-1543-01	0.270	0.120	0.132	0,060
ACW03	PU-239/240	KH199-1843-01	0.000	0.000	0.000	0.045
ACWOS	AM-241	KH199-1843-01	0.000	0.000	0,000	0.086



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- [Am	8CAQC-1643-LC1	SCAQC-1643-LD1	SCAQC-1643-PB			

PRELIMINARY INFORMATION

1000 Mondonfo Court "Mentgemery, Alabama " 30117 " 334 272-2234 " FAX 334-213-0407

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Sanford Cohen & Associates Southeastern Environmental Laboratory

Radioanalytical Results

Report Identification Number: 99A8957

Project Name: Kamur-Hill

Chain-of-Custody Number: 99A89878002

Matric Waste

579 Sample ID: 002.002

ACW03

Other Sample ID: 1112 A SW CORNER

AM-241

KH199-1643-02

Collection Date: 7/21/29 Batch Number: 1843

Date Received: 7/27/09 Laboratory Code: SCA.

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PRELIMINARY MOTON

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2. Acceptable range is a + 20% (source activity in cpm multiplied by 0.8 or 1.2).

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3. All counts are to bel minute in duration.

NOTE If the instrument will be used for alpha measurements only, the beta portion of the test log should be lined through. If the instrument will be used for beta ly, then the alpha portion should be lined through.

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ROCKY FRATSENVIRONNENTAL TECHNOLOGY SITE

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SWIPE COUNTER PERFORMANCE LOC ALPHA BETA INSTURMENT MODEL: (Circle One) Calibration Duc Date 10-13-99 SAC-1/BC-1/LUDLUM 2929 Counter Serial No. 824 End Date: 8-22-99 Location: office Start Date: 6-16-99 Building :_ 24830 D. P. M .: Certification Due Date: Source: SM &CLOTT ZOALCC CDET Source cpm: Shili ta 114 0142 Time 8tz. cpa: Bite. cpm: Time: RCT Emp. Met Source open: Net Source com: RCT Emin .__. % Error: "XECCOC 1-(Prior News / Securery) (Priol Name / Signatury) Cr-+x.Source cpa: SPIKENS Ccos+Source cpm; Shift DI BLE COM Tipe هوك حفصن RCT Emp. 5 Yet Source epas_ RCT Emp. Net Source epas: %Eran Marino. Print Near / Signiture) (Prior Name / Signature) Cross Source open Cross Source com: ZP:(t.DZ Shift P1 303 966 20Atte.com: Tions: MAX NO 8 c. com: RCT Emp. 4 RCT Emp. -_ Net Source epm: %fore: (Print Name / Signa (ore) (Priat Name / Signature) Cross Source cpm: Shift M2 Bly. cpm: Time هادي صحة Time: RCT Emp. 4-NCC Source com: RCT Emp. 4____ Net Source cpm: 22 27 27 ZError: (Perint Nemel Signature) (Priat Name / Senstore) Shin M6 Grow Source that Time Bite open ₹(¢ D2 · Cross Source com: 72 Bly Ow Blog com: 1 O RCT Empi# ----`ct Sounce cpm Na Source cont 72 RCT Emp. 1.48 mor - 11. ... (Print Neme / Signature) (Print News/Season) Shirt D6 Cross Source-coat---1-19 Bloc cpadilis Bl~_cnade Yima. RCT Emp = Net Source cpm; RCT Emp. K_ Net Source chm2 11 1 ×6.000 G Charte Sparsh Sister (Priat Name / Signature) (Print Name / Signature) Gross Source com: Shin P6- Crou Source com: Time . -- Net Source com RET Emp. # ----<u>----</u>:>0>>3 &:--(Priat Name / Signature) (Print Name / Signature) Shift H17 Cross Source com: Time: Btr. com Gross Source com: Big com: 6.8.10 Bie com: RCT Emp. 4 Net Source opas RCT Emp. Net Source Cpat: 74Emor_____ Marine 2-24 (Print Name / Signature) (Print Name / Signature) Cron Source com: Shin D7: Cross Source com: Shili P3 Be-com: Times: Time: RCY Emp. Nei Source com: Net Source com:_ WEGGE. (Srial Name (Signature) (Print Name : Signature) Shichtti Cross Source (pm: Yime: Time: 845 chw; Net Source cpm; RCT Emp. # Net Source open: %Emor_______ 76003 (Print Name / Signature) (Print Hame I Signature) Gross Saurce com: ik D4 ERROR= (Net cpm/E)-Source dpm x 100 85c.cpm: p-T Emp Yer Source cpm: Source dpm mouroz n V. Error Net cpm = gross - background cpm

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2. Acceptable range is a + 20% (source activity in cpm multiplied by 0.8 or 1.2).

3. All counts are to be 1 minute in duration.

If the instrument will be used for alpha measurements only, the beta portion of the test log should be lined through. If the instrument will be used for beta NOTE only, then the alpha portion should be lined through.

ROCKY TEATS ENVIRONMENTAL TECHNOLOGY SITE

'SWIPE-COUNTE	R PERFORMANCE LOC :
INSTURMENT MODEL: (Circle One)	ALPHA D BETATE
SAC-4 (BC-4) LUDLUM 2929 . Counter Serial No	
Start Date: 8-16-99 End Date: 8-22-3	Building: 549 Location:
	-723 Certification Due Date: NIA
Shile MI Grass Source cpm2	Spile Pr & Cross Source cha:
RCY Cmp Net Source cpm:	Time: 6tg. cpo:
RCT Emp. #	RCT Emp. F Nel Source epa:
(Priat Name / Signalure)	' (Prior Name / Signature)
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Time: 0 (20 0 8tr.cpm: 78	RCT Emp. # Yet Sowree cpm:
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(Print Name / Signature)	(Prior Name / Securiore) Shift DS Cross Source com
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(Priat Name / Signature) (CO2	ShirM6 Cross Source cpan
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-T Emp. # 5167	And the Association of the Control o
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Figure .

ROCKY FIXIS ENVIRONMENTAL TECHNOLOGY SITE

SWIPE COUNTER PERFORMANCE LOC

INSTUBMENT MODEL: (Circle One)	R. ALPHAD BETAGE
SAC- BC- DLUDLUM 2929 . Counter Serial No	Calibration Dum De
Start Date: 8-1159 End Date: 8-12-50	4 Building: 549 Location: 66.
Source: S D. P. M .: 2.2-	723 Certification Due Date: w/A
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Time:	Time: But. com:
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X.Error:	%Error:
(Priat Hame / Seasters)	1 (Print Name / Signature)
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Time: 0600 Btg.qm:	Time: Aky-cpm:
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municipal xircon -7.7	%Error:
(Prial Name/Squature)	(Print Name / Securitary)
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Time: Btc. cpm: - IV	Time: FAX MO 202 986 20 BEC- COM:
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% Ceroc:	RCT Emp. See Source com:
(Print Name / Signature)	(Print Name / Signature)
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Timc:	Time Br. cpm;
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%Ecrocite A.	7/ Eccor
(Priot Name / Secuture)	(Print Name / Signature)
ift D1 · Cross Source cpas 5 2 6 2	Shift M6 Cross Source com:
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RCT Emp. # Net Source com 5223	- RCT Empir Not Source com
May 132 May 1/2 Error - 8.1.	%Error Or of
(Print Name / Sentrari)	(Print Name / Stranger)
bill P2 Cross Source Character	Shirt D6 Cross Source com: # 2
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	// Croc
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Tence Bkc-com:	Time Bkc cpm:
CT Emp. K Not Source cpm:	RCT Emp.
	** ** *** *** *** *** *** *** *** ***
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inc: 0600 Bic com: 100 9.	Time: Bkg. cpm:
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Muller Memor - 8.5.	- 7. Errog
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%Eulou:	-7-Eccor:
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nic: Etg. cpm:	Time: Bkg. Cpm:
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(Print Name / Signature)	(Print Name / Signature)
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----ROCKYFINTSENVIRONNENIAUTEGHNOLOGYSITE

SWIPE COUNTER PERFORMANCE LOC ALPHA BETA INSTURMENT MODEL: (Circle One) Calibration Duc Date 10-13-99 824 Start Date: 8-22-99 End Date: 8-22-99 Building : 549 Location: or Chic Start Date: 1 24830 Source: SM D. P. M .: Certification Due Date: 114 mid2 Shill Pa &Cross Source com: oaccc cpm: Time: BLE. cpm: Trac Str. cpm: RCT Cmin F__ RCT Emp. . Net Source cpai Mct Source cpm: 1.Ecroca 1-(Prior Keme / Signature) (Priat Name / Signatury) Ctos+ Zource chas Shift DI Shikke CL+: Zonce cha: Btc.com; Dail. Blog cpas Tiesc: Yet Sawree Cpas Net Source com: RCT Eme RCT Emp. # Marine: (Prior Nemel Steasture) · (Priot Near / Signature) Cross Source CPIII Cron Source Char: TIME: 54X NO 303 888 50864 COME Blec. cpm. Net Source cper: RCT Emp. 4 Not Source epmi RCT Emp. %Croc (Print Name / Signature) (Print Name / Signature) Custs Zonce chai Ble. cpm: Ties: Bte ma: RCT Emp. 6-11 TETTO -- Net Source Com Net Source cpm; RCY Emp. #____ 4Error (Print Name / Signature) (Priat Name / Signature) ₹6 02 Cross Source com...... / Z Biz com! 10. Time: But Out .mc_ RCT Empt # . ----- RCT Emp 1/2 -//.D Muniz (Print Neme (Secretare) (Print News/Seatord) Shirt D6 Shin P2 Cross Source coat---Bkg cpm _ 81⇔ <0 === Time. Net Source cpm; RCT Emp. 4_ RCT Emp. =_ Not Source chima 19 11 (Print Name / Signature) (Priot Name / Separare) Cross Source com Shin P6- Cou Source cout. Spill MO. 143.5 Bor com: Time . RCT Emp. # Net Source epine Net Source cpas_ (Print Name / Signature) (Print Name / Signature) Shift D3 Ate com: 8-2.130 राक्ट Bite com: RCT Emp אכנ בסטרכב כף שנ (Print Name / Signature) %£~~.... (Print Name / Signature) Shift D7: Cross Source com: كرده كومردد دفية: " 8 -- cpm: Buc. cpm: RCY Emp. =_ Nei Source com: Not Source com: (Print Name & Signature) (Frial Name (Signature) Con Zonice cha: Yime: Blg.com: RCT Emp. #_ Nei Source com; %Emor. (Print Name / Signature) (Print Name / Signature) Cross Saurce com: % ERROR= (Net cpm/E)-Source dpm , 100 842.com: r. TEMP # Source dow

E = Efficiency=011 for the SATA and 015 for the BC-

Net Source com:___

Net cpm = gross - background cpm

(Print Name / Signature)

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SWIPE COUNTER	PERFORMANCE LOG :
Lamitro DACENTE MODEL (CT. 11. O. 1)	ALPHACO
MASTURMENT MODEL: (Circle One)	QIZE ALPHA G BETA D
CACA' BC-4/ LUDLUM 2929 Counter Serial No.	835 Calibration Due Date: 10-26-49
Sizer Date: 8-16-99 End Date: 3-22-79	Duilding: 199 Location: office
Source: S/1 0. P.M.: 24	830 Certification Due Date: N/A
Shift Hill Source Com:	Shilt P4 Crots Source com:
Time: Big. com:	Time: Btg. (pm:
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ile Oc Gross Source com: 6473.	
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E-Efficiency-OLI for the SAC-1 and 0.15 for the BC-1 Approved by:	Silvoper 1 18.79-49

	ROCKY FLATS	SEN	<i>VVII</i>	RON	<i>MI</i>	ENT	AL:	TECHNOLO	GY SITE				
	INSTRUMENT DATA					:							
Mfg.	Eberline Mfg. Eberline Mfg.		<u>:</u>			Surv	ey Ty	ype	QA SWIPE	SURVEY			
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-	Tiplia tomo vacio was a two minus			URV	EY/	RES	ULTS	S		-			
Swipe	Location/Description	Remo	vable			Swipe		Location/Des	gription *	Remov	vable	То	tal
. 4	(Results in DPM/100CM ²)	Alpha	Beta			1 - 1	:	(Results in DPM	7100CM2)	Alpha	Beta /	Alpha	Beta
):	T112A ROOM 4 WALL A6*	1.5	-12			21		Was to	,				
"	T112A ROOM 6 FLOOR A1*	1.5	-20			22		A Carrier					
	T112A ROOM 8 WALL P2*	0.0	4	1		223	Q.	No.					
4	T112A ROOM 9 FLOOR A3*	0.0	-36	1		24	N. E. S.	3.4					
5	T112A ROOM 11 WALL K1*	0.0	-32		:	25		. \ .					
6	T112A EXTERIOR WEST WALL BI*	0.0	-28			26		4.3					
7	T112A EXTERIOR NORTH WALL A1*	0.0	0			27							
8	T112A EXTERIOR EAST WALL K3*	1.5;	-20			28							
9	T112A EXTERIOR SOUTH WALL E3*	0.0	-48	\		29			\				
10	T112A EXTERIOR ROOF A2*	0.0	40	N	<u>(A</u>	30			N/A		\dashv		
11	T112B ROOM 1 CEILING B3*	4.5	-24	_		31				\dashv			
	T112B ROOM 2 FLOOR H1*	0.0	-20		<u> </u>	32				\leftarrow \Box			
13	T112B EXTERIOR SOUTH WALL E2*	4.5	24	<u> </u>	1	33	<u> </u>			A = A			
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1	T112C ROOM 5 WALL HI*	0.0	-56	ļ	 	38	<u> </u>					\prec	igg
	T112C ROOM 6 FLOOR CI*	1.5	16	<u> </u>		39							7
20	T112C EXTERIOR ROOF M3*	4.5	4			40							١ \
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T112 QA swipe survey

Radioanalytical Results

Report Identification Number: 99A8967

Project Name: Kalmer-Hill

Chain-of-Custody Number: <u>PRAR9678002</u>

Matric Waste

She Sample ID: 003.002

Other Sample ID: T112 B NW CORNER

Collection Date: 7/21/99

Date Received: 7/27/99

Batch Number: 1843

Laboratory Code: SCA

		Laboratory	Activity	2 or Counting Error	Total Error	MDA
Mathred Number	Radionuciida	Semple ID	(pCl/g)	(pC)(p)	(pCl/g)	(pCi/o)
ACWIO3	U-233/234	KH199-1843-03	0.030	0.049	0.050	0.076
ACWOS	U-236	KH199-1643-03	0,000	0,000	0.000	0.045
ACM03	U-238	KH198-1843-03	0.035	0.048	0.048	0.084
ACW03	PU-238/240	KH199-1643-03	0.022	0.044	0.044	0.059
ACW03	AM-241	KH199-1643-03B	2.37	0.740	0.879	0,119

Quality Control Samples							
Badionuciide	Laboratory Control Sample (LC)	Laboratory Duollicate Amelysis (LD)	Properation Blank (PB)				
u	5CAQC-1543-LC1	SCAQC-1643-LD1	SCAQC-1643-PB				
Pu	8CAQC-1643-LC1	SCAQC-1643-LD1	SCAQC-1643-PB				
Απ	6CAQC-1643-LC1	5CAQC-1643-LD1	SCAGC-1843-PB				

PRELIMINARY

Radioanalytical Results

Report Identification Number: 99A6967

Project Name: Kaleer-Hill Chain-of-Custody Number: 99A89578002 Metric Waste São Sample ID: 004,002 Other Sample ID: 1112 B NE CORNER Collection Date: 7/21/89 Date Received: 7/27/99 Batch Number: 1643 Laboratory Gode: SCA

Method Number	Radionudida	Laboratory Samole ID	Activity (pCVa)	2 o Counting Error	Total Error (oCl/s)	MDA (pGl/o)
ACW03 ·	U-233/234	KH199-1843-04	0.088	0.001	0.062	0.037
ACW03	U-235	KH199-1843-04	0.017	0.033	0.034	0.045
ACW03	U-238	KH199-1643-04	0.013	0.027	0.027	0.037
ACW03	PU-239/240	KH199-1643-04	-0.010	0.020	0.020	0.117
EOWOA	AM-241	KH199-1643-04B	0.000	0.000	0.000	0.088

Quality Control Samples					
Redlonuclide	Laboratory Control Sample (LC)	Laboratory Duplicate Analysis (LD)	Preparation Blank (PB)		
U	SCAQC-1843-LC1	SCADC-1843-LD1	SCAQC-1843-P8		
Pu	SCAQC-1643-LC1	8CAQC-1643-LD1	3CAQC-1643-PB		
_Am	SCAQC-1643-LC1	SCAQC-1843-LD1	SCAQC-1843-PB		

PRELIMINARY

Radioanalytical Results

Quality Control Sample Preparation Stank (PB)

Report Identification Number: 99A8967

Project Name: Kaiser-Hill	Chain-of-Custody Number: Mona	Matrix:	Water
Site Sample 10: N/A	•		
Other Sample ID; PB	Collection Date: 7/27/09	Date Received:	7/27/99
	•	Laboratory Code:	SCA

Mathod Number	Radionardida	Laboratory Sample ID	Activity (dom)	2 or Counting Error (dom)	Total Error (dom)	MDA (dpm)
ACW03	U-233/234	5CAQC-1843-PB	0.043	0.049	0.050	0.038
ACWOS	U-235	SCAQC-1643-PB	0.000	0.000	0.000	0.048
ACW03	U-238,	SCADC-1643-PB	0.079	0.071	0.072	0.068
ACW03	PU-239/240	SCAQC-1643-PB	0.000	0.000	0.000	0.056
ACW03	ANI-241	SCAQC-1843-PB	0.000	0.000	0.000	0.063

		Quality Control Samples	
Radiomyclide	Laboratory Control Sample (LC)	Laboratory Duplicate Analysis (LD)	Preparation Blank (PB)
) U	SCAQC-1843-LC1	SCAQC-1643-LD1	SCAQC-1843-PB
Pu	5CAQC-1643-LC1	SCAQC-1643-LD1	SCAQC-1643-PB
Am	8CAQC-1643-LC1	SCAQC-1643-LD1	SCAQC-1643-PB

Radioanalytical Results

Quality Control Sample Evaluation

Report Identification Number: 99A8967

1	Í			
1	Project Name: Kaber-Hill	•	Laboratory Code:	SCA
- 1		i e	carried Cons.	677-C
				

·		Labor	atory Contol Sam	ple (LC1) Evaluation	n	
			(CV)	• • • • • • • • • • • • • • • • • • • •		
		Laboratory	Decay Consided Activity of Spiles Added	(OV) Laboratory Control Sumple Activity	Laboratory Control Sample % Recovery	Number of s
Method Number	Radionucida	Sample ID	(dpm)	(moth)	(Accument)	Between CV and OV
ACW03	AM-241	SCAQC-1843-LC1	4.24 ± 0.117	4.38 _# 1.17	103	0.191
ACW03	PU-239/240	SCAQC-1643-LC1	4.55 _∓ 0.100	5.13 # 1.37	113	0.673
ACW03	U-233/234	8CAQC-1643-LC1	8.02 = 0.321	7.28 _# 1.75	20.3	0,660
ACW03	U-238	SCAQC-1643-LC1	8.02 ± 0.321	7.74 ± 1.86	96.4	0.231

		Laborati	ory Duplicate Sam	iple (LD1) Evaluati	on	Ratio of the Difference Between the Semple Activities and the Propagated
Mathod Number	Redionuclida	Laboratory Samole IO	Original Sample Activity (pCl/g)	Dupăzala Sample Activity 	Difference Between Original Activity and DupBezte Sample Activity 3 (F)	Measurement Original Activity and Uncertainty of the Ofference at 2 or
ACW03	U-233/234	SCAQC-1643-LD1	0.264 = 0.129	0.244 # 0.133	0.020	0.108
ACW03	U-235	SCAQC-1843-L01	0.016 + 0.031	Q-018 ¥ Q.Q37	0,003	0.055
ACW03	U-238	SCAQC-1643-LD1	0.270 _# 0.132	0.170 + 0.109	0.100	0.587
ACWOS	PU-239/240	3CAQC-1643-LD1	0.000 * 0.000	0.041 + 0.059	0.041	0.595
ACW03	AM-241	SCADC-1643-LD1	0.000 = 0.000	0.054 + 0.078	0.054	0.625

WASTE STREAM ID:_____)
CUSTOMER SAMPLE ID:____

RIN: 9948947

EVENT: 001
DUPLICATE ID: NA

	TRIP BLANK:
•	The burner.
	Comments/Problems encountered during sampling: Temp in upper 805
	Slight breeze. Tar roof excells temp. Sample taken in
col col la	4 Inch squares." Scron Final magsurment 12" × 16" area taken for
wi.wt ke	Sample at 17/ and Tollar and man the training
	Sample at 126 grams - Isotopk 001.002 ut 144 grans 12 x16 area
	Location Description: T 112 A CENTER
[/ <u>]</u>	
	Other ID: Center Sample location
	Sample Appearance: Black Solid Chunks with Silver material
	present. Sample Could contain tar.
	Sampling Device: Stainless Staper
	7-21-99
	Sample Date: 7-21-99 Sample Time: 1200 Rad Screen Date: 1200 era
	1.
	Was generator notified to receive excess sample? (YES) X (NO)
	Samplers Signature: Changet D. Tage to
	Employee Number:
	Date: 7-21-99 7-21-99
•	

WASTE STREAM ID:_

EVENT: 002	CUSTOMER SAMPLE ID:
DUPLICATE ID: N/A	FIELD BLANK ID:
ISSUE DATE: 7/19/199	EQUIPMENT BLANK ID:
	TRIP BLANK:
	·
Comments/Problems encountered d	luring sampling: Temp in upper 80°5, Sightbreen
	grams taken in 12 × 16 mch area
Isotopic 002.002 w+ 129	grams taxen in 12x16 inch arra
- A C	
av Roof excells tempera	ters.
Lagation Requirement T 117 K	1-
cocation description. 11.01	
~~~	
Other ID: South 1110	st Corner.
Sample Appearance: Black 9.	old Chunk Some Silver material
present , sample Could a	Contom tar
Sampling Device: Stain 1.55	Scrafer
Sample Date: <u>7-21-99</u> S	Sample Time: 1230 Rad Screen Date: 7-21-99
Was generator notified to receive	excess sample? (YES) (NO)
	97.
Samplers Signature:	esepted b. h-son to
Employee Number:	
Date: 7-21-9	7.21.99

RIN: <u>99A-8967</u> EVENT: <u>003</u> DUPLICATE ID: <u>W/A</u> ISSUE DATE: <u>7-19-99</u>	WASTE STREAM ID:
Radscreen 003.001 130 grams	ing sampling: On ladder while taking s problems cuting out sample. 4x16 inch sample used. 4x16 inch sample used.
Location Description: 7 //2	8
Other ID: North wes	•
Sampling Device: Tin Snips	1.7: (70) 0.10
Was generator notified to receive ex	nple Time: <u>1300</u> Rad Screen Date: <u>7.21.99</u> Kcess sample? (YES) V (NO)
Samplers Signature: ASA cury Employee Numbe Date: 7-21-99	7.21-99

EVENT:	CUSTOMER SAMPLE ID: FIELD BLANK ID: EQUIPMENT BLANK ID: TRIP BLANK:
Comments/Problems encountered do	uring sampling: Trmp lower 90's Sampled Collecting Sample ns 6x16 inch sample used.
radscieen 004001-191 dear	as 6x16 inch sample used.
Tsologic 104.002 - 138 gran	ns lox8 Inch Sample Used
	
Other ID: North Eas	St Corner
Sample Appearance: Grey ma Siliconotype glue	on metal.
	
Sampling Device: Tm Soip	·
Sample Date: 7-21-49 S	ample Time: <u>1315</u> Rad Screen Date: <u>7-21-99</u>
Was generator notified to receive	excess sample? (YES) (NO)
Samplers Signature: MA un	of D. Timb
Employee Number:	
Date: 7-21-49	7-21-99

SAMPLE SUMMARY FOR RIN: 99A8967

RIN Title Project Name Task Name	D&D PROJECTS			Sampli	Sampling ng Mgr/Coord	·		ascel.
Aggregate Area:				· · ·	Field Logb	•	14 Van	
This sample summan	is supplied to waste ger	nerators as notificat	ion of sample collection	on. Inquires into the	status of this s	ampling effort i	may be directed to th	e Analytical Services Division (ASD).
Bottle Number	Customer Bottle Number	Location	LIC (See Attached)	Laboratory	Date Collected	Date Shipped	Date Returned	Comments
99A8967-001.001		T-112	1	Thermo NuTech	•			
99A8967-001.002		T-112	2	S. Cohen & Associates				
99A8967-002.001		T-112	1	Thermo NuTech				
99A8967-002.002		T-112	2	S. Cohen & Associates				
99A8967-003.001		T-112	1	Thermo NuTech				
99A8967-003.002		T-112	. 2	S. Cohen & Associates				
99A8967-004.001		T-112	. 1	Thermo NuTech				
99A8967-004.002		T-112	2	S. Cohen & Associates				
federal regulations.	material remaining after Regulatory exclusions facilitate are encountered the be returned. Material when the degement:	or returning excess e Environmental Co nich has been acidif rint Name	sample material are pordinator for the general for preservation p	specified in the Coderation area should urposes will not be	e of Colorado R be contacted for	egulation (CCF	t) 1007-3, Part 261.4	ss sample material for applicable state and (d) 'Samples'. If problems with the disposal of ple material which has not been modified

Date: 7/19 5:59 PM

SAMPLE SUMMARY FOR RIN: 99A8967 Sampling Team: RIN Title: Sampling Mgr/Coordinator: MAN Paul Woitacek Project Name: D&D PROJECTS CA.DL Task Name: T-112 Samplers: Aggregate Area: x1/4 Field Logbook ID: 94 Van Media: SOLID This sample summary is supplied to waste generators as notification of sample collection. Inquires into the status of this sampling effort may be directed to the Analytical Services Division (ASD). LIC Laboratory Date Date Date Bottle Number Customer Location Comments Bottle Number (See Attached) Collected Shipped Returned 99A8967-001.001 T-112 Thermo NuTech 7-21-99 7-21-99 TIIZA CONTER S. Cohen & 99A8967-001.002 T-112 Associates 99A8967-002.001 T-112 Thermo NuTcch TUZA SW Corner 99A8967-002.002 T-112 S. Cohen & Associates 99/18967-003.001 T-112 Thermo NuTech TIZB NOCO-W 2 99A8967-003.002 T-112 S. Cohen & Associates 99A8967-004.001 T-112 Thermo NuTech TILB NECOMMY T-112 S. Cohen & 99 4 8967-004-002 Associates Returning Excess Sample Material: Unmodified sample material remaining after analysis is generally returned to the generator. The generator must be prepared to receive and dispose of excess sample material for applicable state and federal regulations. Regulatory exclusions for returning excess sample material are specified in the Code of Colorado Regulation (CCR) 1007-3, Part 261.4(d) 'Samples'. If problems with the disposal of excess sample material are encountered, the Environmental Coordinator for the generation area should be contacted for resolution of the issues. Only sample material which has not been modified during analysis will be returned. Material which has been acidified for preservation purposes will not be returned. Customer Acknowledgement:

(Sign and Print Name)

Comments:

Line Item Codes:

OS01A003

(Rad-Screen - Solid)

RC01B003

(Isotopic (Soil))

Date: 7/1°

1:17:00 PM

Thermo Nutrach - Rocky Flats Radscress Results



Distribution/Fax: ASD/ 4558

RN: Analysis Report Date:

99A3967 Radscreen 07/25/99

Laboratory Sample (D)	APO Sample ID				Gross Alpha Gross Alpha					
	RIN	Event	Bottle	Matrix			Gros	s Beta	Total Activity	DOT
99070249-01	99A8967	001			pCl/g	20	pCl/g	28	pCVg	Class
99070249-02			001	Waste	5.6	3.2	9,3	3,1	21.20	
	99A8967	002	001	Waste	3.6	2.2	4.0			NONRAD
99070249-03	99A5967	003	001	Waste	3.8			21	11.90	NONRAD
99070249-04	99.48987	004				6.3	11.0	7.0	28.10	NONRAD
	1 000001	- 004	001	Waste	5.3	5. 0	-0.8	4.2	14.50	NONRAD

DOT Classification <2000 pCl/g total activity is NONRAD >= 2000 pClig total activity is RAD

Total Activity

Calculated as the sum of the gross eights and beta activities AND the measurement uncertainties for these two measurements.

If the measured activity is negative, O pCUg (instead of the negative value) is used to calculate the total activity.

Analysis Methods

Sample Preparation Procedures: ATP-005, "Preparation of Oils, Solvents and Combustibles for Analysis of Gross Alpha and Beta Activity" (1 g aliquot) and

L-5278-A, "Sample Preparation for Radiological Screening by Gas Proportional Counting". Counting Procedure: ATP-008, "Operation of Tennelec LB4100, Gas Proportional Counters".

Thomas Albert - Parity Floris RPETE - BUSHY THEO Cotton Courses JOUR (307) ME-6360

RP-0002 (11/12)



KAISER+HILL company ANALYTICAL SERVICES DIVISION

FAX COVER SHEET FOR PRELIMINARY DATA REPORTS

RIN NUM	BER: 994896)
FROM:	TOM SZYDLOWSKI
PHONE:	(303) 966-8165
FAX:	(303) 966-4555
TO:	Wojtaszek
FAX:	4046
PHONE:	
NUMBER	OF PAGES, INCLUDING COVER SHEET:
Please con	if the fax is not received in its entirety. (phone number)

NOTE:

If the accompanying data is stamped preliminary it is because the final data package has not been received and validated or verified. Until the data is validated or verified it must be considered preliminary. Final data is usually not received until 30 days after the laboratory has received the sample. Verification or validation is completed a short time following receipt of the final data package. You will be sent a copy of the verification or validation report, which you should review. If qualifiers have been attached to individual results they may affect the way that you use the data. If you have any question please contact your Analytical Services Project Lead, do not contact the laboratory directly.

003.002 2.37 pa/m 2.37 plix 125 gm x (inex) 2 x 2.57 cm) 2 x 2.57 cm) 2 (2.37)(125)(1)(2.2) don = 657.75 Cm 2 4/2.9024 = 1,578 dp /cm 2 157.8 dpm 100 cm 2

143

ANALYTICAL SERVICES DIVISION SAMPLING AND ANALYSIS REQUEST FORM

RIN: 29886 Friority: Rush ASD USE ONLY
ASD Project Lead. Sold Story Phone: 8/65 Pager:
(USTOMER INFORMATION
Date: 07/19/99
Project Charge No.: 150/04-20
Requestor: FAVI A. WOSTASZEK Phone: x 3/25 Pager:
Bidg: <u>T893B</u> Fax x 4046
Secondary Contact: DAVE BARNES Prone: x 5352 Pager: 212-6541
Bidg: 130B Fax
Fax Data Results To: Proc A. Woulds 25k Prone: x 3125 Fax: x 4096
Sample Location: T112 A, 7-112 B SAMPLE INFORMATION
Sample Hentifiers
Sample Matrix: Aqueous Org. Liqui X Solid Sludge Mutti Phase
When will sample to available for sampling? 6.00 AM. 1465, 07/20/99
When is data required by requestor? 08/06/99 - 15.8.P
Estimates quantity Available for Sampling:
Waste Stream ID No. (if known) EPA CODES: MISDS O You Go We DETERMINED
The Machen Cree X
Control of No.
Start Date: End Date:
ANALYSES REQUESTED
P Alphardeta Screen Total VOA TCLP VOA DH Other
Gross Alpha/Beta Total SVOAS TCLP SVOAS Fingerprint 4 Sample S
THE POPULATION IN THE POPULATI
The second secon
L.: Gamma Spec Total Herbicides TCLP Herbicides If Yes O Single Analysis:
RADIOLOGICAL ENTRY REQUIREMENTS IS THIS A RADIOACTIVE WASTE STREAM? Suspected to be radioactive? O Yes (2) No.
Localist RBA RMA RMA CA CHICA RA CHRA Other Area.
RCF Support: (Yes () No Comments
RWP Required: O Yes (2) No
CENERAL ENTRY REQUIREMENTS/SAFETY CONCERNS
Replan of the Day Reindustrial Hygrana Assistance Electrica:
Maintenance Assistance Carcinogen Control Area Till IWCP
Toperator's Assistance Lock-ouvTag-out Confined Space
Merchanical Wasta Consins Fluorides Other:
Special instructions Samplers require lodder sately training. There many
he time (1) samples with the
be trup (2) somplors with this training.
Requestor Signature: well Winyou Date: 07/19/99
Note: Excess sample will be returned to generator.

ANALYTICAL SERVICES DIVISION SAMPLING AND ANALYSIS REQUEST FORM

		ASD USE ONLY	,	
RIN: 99A8967	Priority:			
ASD Project Lead: S	ZYDLOWSKI, TOM	Phone:	8165	Pager:
07/40/400		STOMER INFOR	MATION	
Date: 07/19/1999	! - .			
Project Charge No.:	02017100	Observe	2405	D
Requestor:	WOJTASCEK	Phone:	3125	Pager:
		Bldg:		Fax:
Secondary Contact:	BARNES, DAVE	.Phone:	5352	Pager.
		Bldg:		Fax:
Fax Data Results To:	WOJTASZEK	Phone:	4046	Fax:
	S	AMPLE INFORM	ATION	
Sample Location:	T-112	. ·	· · · · · · · · · · · · · · · · · · ·	
Sample Description and Sample Identifiers	d Roffing material		· · · · · · · · · · · · · · · · · · ·	
Sample Matrix:	Aqueous 🗌 Org. Liqu	id 🕢 Solid	☐ Sludge	Multi Phase
When will sample be av	vailable for sampling?	07/20	/1999	
When is data required t	•	08/05	/1999	-
Estimated quantity Availa			·	
Waste Stream ID No. (if			tream Name (if kn	
EPA CODES:	MSDS:	○ Yes ⊙		D: () Yes (e) No
COMPATIBILITY CODE 90 Day Area? () Yes		WFC/ II	End Date:	
90 Day Area? () Yes	Statt Da	le	End Date.	
,		NALYSES REQU	ESTED	•
Alpha/Beta Screen	Total VOA	TCLP VOA	☐ pH	Other:
Gross Alpha/Beta	Total SVOAS	TCLP SVOAS		print
☑ Isotopics	Total Metals (ICP)	TCLP Metals	IR Analyses (
g/l Isotopics	Total PCBs	TCLP PCBs		Criticality Sensitive? () Yes () No Single Analyses;
Gamma Spec	Total Herbicides	TCLP Herbici		Double Double
	D. DIOLO	CICAL ENTRY P		
IC TUIC A DADIOACTIN		GICAL ENTRY R	-	2 C) Vaa O Na
IS THIS A RADIOACTIV			I to be radioactive	
Located In: RBA	 RMA []RMMA		U Othe □ RA □	
	Yes () No Comm		<u> </u>	The Carlot Face.
) Yes 🍥 No	•		
PWRE Required: (Yes () No			<u></u>
,	GENERAL ENTR	Y REQUIREMEN	TS/SAFETY CON	CERNS
Plan of the Day	📝 Industrial Hy	giene Assistance	[<u>]</u> E	lectrical
Maintenance Assista	nce Carcinogen (Control Area	IV	VCP
Operator's Assistance	e Lock-out/Tag	-out	[C	onfined Space
Mechanical	Waste Conta	ins Fluorides	Other	;
Special Instructions: IBo	oth persons sent to sample t	his job must have	current ladder sat	lety training.
Paguarte St. 114	Part III			07/11/00
Requestor Signature:	Jun 1 MX			Date: () / 7 / 9 9
Note: Excess sample	will be returned to generat	or,		ι ι '

Commod Sciences,	ore Advanced	i.	(CHAI	N OF CUSTO	DY/S	SAMPL	E ANALYSIS	REQUES	\mathbf{T}°	c.o.c.# 99	A8967#00
·	,				:				: 		Page	<u>l</u> of <u>l</u>
Collector CEA	wott:	127 T			Contact/Requester WOJTASCEK				Telephone No.	MSIN	NA FAX	
RIN 99A8					Sampling Origin T-112					er/Charge Code	n nd	
Project Title	NA				Loghook No	Van			Ice Chest No.	NA	Temp.	<u>*)</u>
To /Lab	Cohen & Associates		·		Method of Shipment		<u>.</u>		Bill of Lading/			
Protocol .					3	٠ ١٧٠		· · · · · · · · · · · · · · · · · · ·	Offsite Proper	ty No.		
POSSIBLE SA	<u>13 - 50 P. </u>	MARKS Pos	ssible -	Tarp	oresent in S	mpk	SPECIAL IN	STRUCTIONS 11	old Time	· Total Activit	y Exemption:	Yes . No:
Bottle No.	Customer Number	Matrix	Date	Time	Location	No/T	ype Container		Sample Ana	lysis		Preservative : Packing
99A8967- 001.002		SOLID		1200	T-112	125-0	G P/G	RC01B003 (Isotop	oic (Soil)) [Rus	h]		None 4 degrees C
99A8967-	TIIZ A Conter	SOLID	7-21-99	1200	T-112	125-0	G P/G	RC01B003 (Isotop	oic (Soil)) (Rus	hl		None
002.002	TIIZA Some			1230	i			(10012000)	,,, (COII)) (1.435			4 degrees C
99A8967-	. N.W	SOLID			T-112	125-0	G P/G	RC01B003 (Isotop	oic (Soil)) [Rus	h]		None
003.002	TIBB Corner			1300		<u> </u>						4 degrees C
99A8967- 004.002	N.E TIIZB Corner	SOLID		/3/5	T-112	125-0	3 P/G	RC01B003 (Isotop	oic (Soil)) [Rus	h]		None 4 degrees C
		٠			111 7	-21-9	19					
			·									
Relinquished By:		Date/Time 9 /500	Received B		721 <i>4</i> 9	ate/Time	Relinquishe	d-By:	Date/Time	Received By:		Date/Time
Relinquished By:		Date/Time	Received B			ate/Time	Relinquishe	d By:	Date/Time	Received By:		Daté/Time
Relinquished By:		Date/Time	Received B	y:	Da	ate/l'ime	Relinquishe	d By:	Date/Time	Received By:		Date/Time
Relinquished By:		Date/Time	Received By	y:	Da	ntc/Time	Relinquishe	d By:	Date/Time	Received By:		Date/Time
FINAL SAME DISPOSIT	PLE Disposal Method (e.g., Return to cus	tomer, per lab	procedure,	used in process)		·	Disposed By			Date/Time	
P						· .	· · · · · · · · · · · · · · · · · · ·					and the same

Commod Sciences,	ore Advanced Inc.	.,1	(CHAIN	OF CUST	ODY/S	AMPL	E ANALYSIS	REQUES	T	Page	18967#001
Collector	ıl il	And	<u> </u>		ntact/Requester				Telephone No	. MSIN ,	₩ FAX	
RIN OOLO	- Carrier - Carr				WOJTASCEK mpling Origin				3125 Purchase Ord	er/Charge Code	****	
99A8	967				T-112				02017100			
Project Title	1/4				gbook No. 94 1	lan			Ice Chest No.	N/A Te	πp.	La
To (Lab) The	ermo NuTech		•	Me	thod of Shipment	Valid			Bill of Lading	/AIR BIII NO.	٠.	
Protocol A .i	5 (00 A					<u> TIMILA</u>	·	·	Offsite Proper	ty No .		
POSSIBLE SAI	5–50P. D MPLE HAZARDS/RE DIE	MARKS POS	Sible	Terpr	resent in	5	PECIAL D	ISTRUCTIONS H	old Time	Total Activity E	xemption:	Yes No!
Borde No.	Customer Number	Matrix	Date	Time	Location	Norts	pe Container	T	Sample An	alysis	· · ·	Preservative : Packing
99A8967- 001.001	TILLA Conter	SOLID	7-21-99	1200	T-112	125-C	P/G	OS01A003 (Rad-S	Screen - Solid) [Routine-r.screen]		None None
99A8967- 002.001	TIZA Corner	SOLID		1230	T-112	125-G	P/G	OS01A003 (Rad-S	Screen - Solid)	[Routine-r.screen]		None None
99A8967- 003.001	71128 W.W	SOLID		1300	T-112	125-G	P/G	OS01A003 (Rad-S	Screen - Solid)	[Routine-r.screen]	-	None None
99A8967- 004.001	N.E TILB Corner	SOLID	1	1315	T-112	125-G	P/G	OS01A003 (Rad-S	Screen - Solid)	[Routine-r.screen]		None None
					14 A	7-21-9	1				<u>"</u>	
												•
	-											
25 Lu	in 7-21-99	1508		telde/	1 7/21/49	1508	Kennquisne	d isy:	Date/Time	Received By:		Date/Time
Relinquished By:		Date/Time	Received By	:		Date/Time	Relinquishe	d By:	Date/Time	Received By:	·	Date/Time
Relinquished By:		Date/Time	Received By	:	· · · · · · · · · · · · · · · · · · ·	Date/Time	Relinquishe	d Ву:	Date/Time	Received By:		Date/Time
Relinquished By:		Date/Time	Received By	:		Date/Time	Relinquishe	d By:	Date/Time	Received By:		Date/Time
FINAL SAMP DISPOSITIO		e.g., Return to cust	tomer, per lab	procedure, use	d in process)			Disposed By		D	ate/Time	





Sanford Cohen & Associates Southeastern Environmental Laboratory

Radioanalytical Results

Quality Control Tracer Yield

Report Identification Number: 99A8957

Project Name: Kelser-Hill

- Laboratory Code: BCA

Laboratory Sample ID	_Am-243_	_Pu-242_	_U-232_
KH199-1643-01	43.21	80.72	91.08
KH199-1643-02	69.25	75.38	· 96.53
KH199-1643-03		62.71	89.6
KH199-1643-03B	63.58		•
KH199-1643-04	•	55.87	88.32
KH199-1643-04B	84.4		
SCAQC-1643-LC1	91.28	85.99	91.91
SCAQC-1843-LD1	47.42	65.78	82.86
SCAQC-1643-PB	77.91	68.52	93.83

1000 Martine Court Margonery, Asserta 138117 13812722224 1FAZ PERELIMINARY
INFORMATION





KAISER+HILL COMPANY ANALYTICAL SERVICES DIVISION

FAX COVER SHEET FOR PRELIMINARY DATA REPORTS

RIN NUM	BER: 4948967
FROM:	TOM SZYDLOWSKI
PHONE:	(303) 966-8165
FAX:	(303) 966-4555
TO:	Wojtaszek
FAX:	4046
PHONE:	
NUMBER	OF PAGES, INCLUDING COVER SHEET:
Please con	tact if the fax is not received in its entirety. (phone number)

NOTE:

If the accompanying data is stamped preliminary it is because the final data package has not been received and validated or verified. Until the data is validated or verified it must be considered preliminary. Final data is usually not received until 30 days after the laboratory has received the sample. Verification or validation is completed a short time following receipt of the final data package. You will be sent a copy of the verification or validation report, which you should review. If qualifiers have been attached to individual results they may affect the way that you use the data. If you have any question please contact your Analytical Services Project Lead, do not contact the laboratory directly.

Appendix 4

Radiological Survey Data for Interior and Exterior of Trailer T112C (Survey Unit C)

APPENDIX 4 - Survey Unit C (T112C)

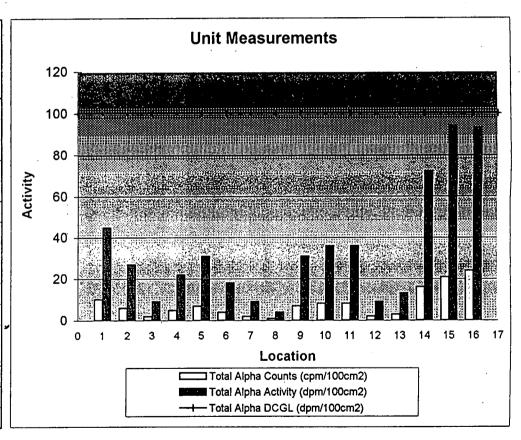
- Survey Unit C Data Summary
- MARSSIM Calibration/Verification Worksheet
- Total and Removable Radiological Survey Results
- Performance Test Logs
- Survey Package Cover Sheet
- Sampling and Survey Instructions
- Grid Survey Map



August 19, 1999

, ,					8/5/1999	8/19/99
standard deviation:	28.67686	max:	94.0	Instrument background:	0 cpm	3 cpm
mean:	34.3125	min:	4.0	Instrument efficiency:	22.3 %	22.5 %
median:	29			Instrument MDA:	33 dpm	48 dpm

	Surface		ation	Grid Location	Counts	Total Alpha Activity (dpm/100cm²)	DEGL
1	Room	1	Floor	B4	10	45	100
2	· Room	1	Floor	C2	6	27	100
3	Room	1	Wall	D1	2	9	100
4	Room	1	Wall	E2	5	22	100
5	Room	2	Wall	K2	7	31	100
6	Room	3	Wall	E1	4	. 18	100
7	Room	3	Wali	J2	2	9	100
8	Room	3	Wall	L1	1	. 4	100
. 9	Room	4	Wall	E2	7	31	100
10	Room	5	Wall	B2	8	. 36	100
11	Room	5	Wali	H1	8	36	100
12	Room	5	Wall	l1	2	. 9	100
13	Room	7	Wall	C1	3	. 13	100
14	Exterior	N	Wall	J3	16	72	100
15	Exterior	S	Wall	G1	21	94	100
16	Exterior		Roof	М3	24	93	100





August 19, 1999

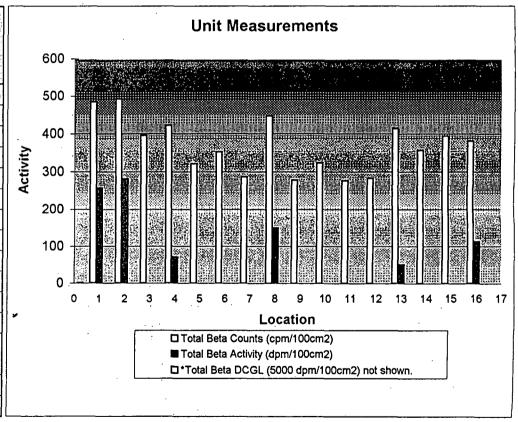
8/5/1999 8/19/99

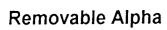
 standard deviation:
 220.1215
 max:
 281.0
 Instrument background:
 398 cpm
 346 cpm

 mean:
 -75.8125
 min:
 -364.0
 Instrument efficiency:
 33.5 %
 30.4 %

median: -67 Instrument MDA: 285 dpm 294 dpm

	Surface	Lo	cation	Grid Location	Total Beta Counts (cpm/100cm²)	Total Beta Activity (dpm/100cm²)	Total Beta DCGL (dpm/100cm²)
.1.	Room	1	Floor	- B4	484	257	5000
2	Room	1_	Floor	C2	492	281	5000
3	Room	1	Wall	D1	396	-6	5000
4	Room	1	Wall	E2	422	72	5000
5	Room	2	Wall	K2	321	-230	5000
6	Room	3	Wall	E1	352	-137	5000
7	Room	თ	Wail	J2	286	-334	5000
8	Room	3	Wall	L1	448	149	5000
9	Room	4	Wall	E2	277	-361	5000
10	Room	5	Wall	. B2	323	-224	5000
11	Room	5	Wall	H1	276	-364	5000
12	Room	5	Wall	11	282	-346	5000
13	Room	7	Wall	. C1	415	51	5000
14	Exterior	N	Wall	J3	357	-122	5000
15	Exterior	S	Wall	G1	394	-12	5000
16	Exterior		Roof	М3	380	113	5000

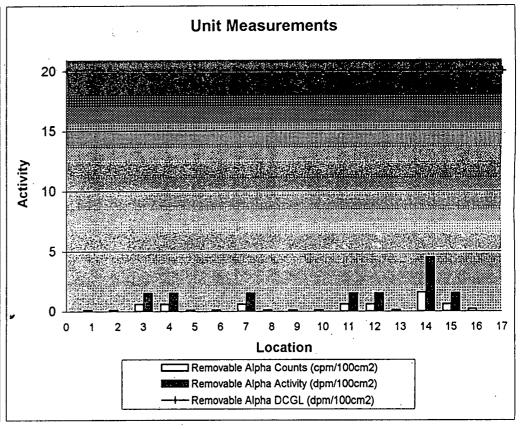


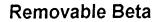


August 19, 1999

					8/5/1999	8/19/99
standard deviation:	1.220912	max:	4.5	Instrument background:	0.1 cpm	0.2 cpm
	0.84375	min:	0.0	Instrument efficiency:	33 %	33 %
median:	0			Instrument MDA:	6.5 dpm	7.5 dpm

	Surface			Location		Removable Alpha Activity (dpm/100cm ³)	Removable Alpha DCGL (dpm/100cm²)
	STATE OF THE	, g . [4]			(cpm/(oucm) c	Agricultura (C. 1.) and Substitute several formation of State Several	#49.515755.417712512C+\$652C+25
1.	Room	1	Floor	B4	0	0	20
2	Room	1	Floor	C2	0	0	20
3	Room	1	Wall	D1	. 1	1.5	20
4	Room	1	Wall	E2	1	1.5	20
5	Room	2	Wall	K2	0	0	20
6	Room	3	Wall	E1	0	0	20
7	Room	3	Wall	J2	1	1.5	20
8	Room	3	Wall	L1	. 0	0	20
9	Room	4	Wall	E2	0	0	20
10	Room	5	Wall	B2	0	0	20
11	Room	5	Wall	H1	1	1.5	20
12	Room	5	Wall	[1	1	1.5	20
13	Room	7	Wali	C1	0	0	20
14	Exterior	N	Wall	J3	2	4.5	20
15	Exterior	S	Wall	G1	1	1.5	20
16	Exterior		Roof	М3	0	0	20

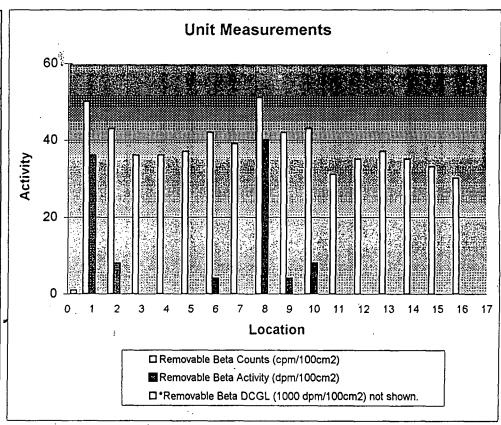




August 19, 1999

	-				8/5/1999	8/19/99
standard deviation:	23.9207	max:	40.0	Instrument background:	41 cpm	40 cpm
mean:	-8.75	min:	-40.0	Instrument efficiency:	25 %	25 %
median:	-16			Instrument MDA:	200 dpm	200 dpm

	Surface	Surface Location			1. Annual State of the Control of	Removable Beta Activity (dpm/100cm²)	Beta DCGL
. 1	Room	1	Floor	B4	50	36	1000
2	Room	1	Floor	C2	. 43	8	1000
3	Room	1	Wali	D1	36	-20	1000
4	Room	_1	Wall	E2	36	-20	1000
5	Room	2	Wall	K2	37	-16	1000
6	Room	3	Wall	E1	42	4	1000
7	Room	3	Wall	J2	39	-8	1000
8	Room	3	Wall	L1	51	40	1000
9	Room	4	Wall	E2	42	4	1000
10	Room	5	Wall	B2	43	8	1000
11	Room	5	Wali	H1	31	-40	1000
12	Room	5	Wall	11	35	-24	1000
13	Room	7	Wali	C1	37	-16	1000
14	Exterior	Z	Wall	J3	35	-24	1000
15	Exterior	S	Wali	G1	33	-32	1000
16	Exterior		Roof	M3	30	-40	1000



Survey Area: T112 **Building:** T112C

Survey Unit: C (T112C Exterior)

Post Survey Removable Contamination Summary Statistics Calculation Verification Worksheet

Step 1:

Conduct a preliminary data review: (the mean, standard deviation, and median of the Unit C removable surface contamination data are calculated on the "Survey Unit C Data" sheet. Because all removable survey measurement results are less than DCGLw (alpha less than 20 dpm/100 cm², beta less than 1000 dpm/100 cm²), the survey unit clearly meets the removable contamination release criterion.

Step 2:

Select the statistical tests: The one-sample sign test was selected to assess the data, with $\alpha = 0.05$ and $\beta =$ 0.05. The number of sample points calculated was based on the use of this test.

The performance of the sign test was not necessary due to the fact that each individual net result was less than the DCGLw. Thus, the sign test would result in the rejection of the null hypothesis, and conclude that the median concentration of residual radioactivity in the survey unit is less than the DCGLw.

Step 3:

Verify the assumptions of the test: The assumed data variance, as indicated by the assumed standard deviation was verified by re-calculating the required number of smears with the ACTUAL survey unit standard deviation.

The actual removable survey standard deviations for <u>Unit C</u> are: $\alpha = 2.38 \beta = 23.9$

Thus, the ACTUAL required number of measurements is as follows:

 $\Delta/\delta = (DCGL_{REMOVABLE} - LBGR_{REMOVABLE})/SD_{REMOVABLE}$

 $\Delta/\delta_{\text{transuranies}} = (20 \text{ dpm}/100 \text{cm}^2 - 10 \text{ dpm}/100 \text{cm}^2)/2.38 \text{ dpm}/100 \text{cm}^2 = 4.2$

 $\Delta/\delta = (DCGL_{REMOVABLE} - LBGR_{REMOVABLE})/SD_{REMOVABLE}$

 $\Delta/\delta_{\text{transuranics}} = (1000 \text{ dpm/}100\text{cm}^2 - 500 \text{ dpm/}100\text{cm}^2)/23.9 \text{ dpm/}100\text{cm}^2 = 20.9$

Where:

Δ/δ

is the relative shift or the resolution of measurements in units of measurement

uncertainty

DCGL REMOVABLE is the removable surface contamination derived concentration guideline value (DOE Order 5400.5

removable surface contamination limit equals 20 dpm/100cm² for transuranics per the T112A-C Pre

Demolition Survey Plan)

LBGR REMOVABLE is the lower bound of the gray region - the lower bound of the range of values of the parameter of

interest in a survey unit where the consequences of making a decision error is relatively minor (set equal

to value utilized in original sample size calculation).

SD REMOVABLE

is the ACTUAL standard deviation of the removable surface contamination measurements

Determine the Sign P value by looking up the relative shift (Δ/δ) in Table 5.4 of MARSSIM (the Sign P value is the estimated probability that a random measurement from the survey unit will be less than the DCGL when the survey unit median is actually at the LBGR). The Sign P value from Table 5.4, equals <u>0.998650</u> for a relative shift of 3.0 (The highest published value is utilized for conservatism).

Survey Area: T112 Building: T112C
Survey Unit: C (T112C Exterior)

Post Survey Removable Contamination Summary Statistics Calculation Verification Worksheet

Step 3: Continued

Determine the number of removable surface contamination measurements for the applicable survey unit using the following MARSSIM, Section 5.5.2.3 formula that is based on radioactive contaminants of concern not being present in the background:

$$\alpha$$
N = $(1.645 + 1.645)^2 / 4(\text{Sign P} - 0.5)^2$
N = $(1.645 + 1.645)^2 / 4(0.998650 - 0.5)^2 = \underline{10.9}$
R

$$N = (1.645 + 1.645)^{2} / 4(\text{Sign P} - 0.5)^{2}$$

$$N = (1.645 + 1.645)^{2} / 4(0.998650 - 0.5)^{2} = \underline{10.9}$$

Where: 1.645

is the alpha and beta decision error value (95% confidence) per the T112A-C Pre Demolition Survey Plan

Sign P equals 0.998650

Step 4: Increase N by 20% to allow for missing or invalid data points per MARSSIM, Section 5.5.2.3.

N = 10.9 * 1.2 = 13

Conclusion: Utilizing a conservative relative shift value of 3.0, a minimum of $\underline{13}$ α and β Removable Surface Contamination measurements were required in $\underline{\text{Unit C}}$.

Step 4:

Draw conclusions from the data: All measurements are less than DCGL_w. The minimum number of required removable survey measurements were collected. Thus, survey <u>Unit C</u> complies with the removable contamination release criteria.

D. A. BARNES	Ston	8-19-99
Prepared By: Printed Name	Radiological Engineer Signature	Date
ESTABROOKS	MoEstabal is	8/19/99
Reviewed By: Printed Name	Radiological Engineer Signature	Date

Survey Area: T112 Building: T112C

Survey Unit: C (T112C Exterior)

Post Survey Total Surface Activity Summary Statistics Calculation Verification Worksheet

Step 1:

Conduct a preliminary data review: (the mean, standard deviation, and median of the <u>Unit C</u> data are calculated on the "<u>Survey Unit C Data</u>" sheet. Because all total surface activity (TSA or TSC) measurement results are less than DCGL_W (less than 100 dpm/100 cm²), the survey unit clearly meets the TSA release criterion.

A graphical data review was also performed on the attached form. The posting plot indicated that spatial trends of elevated areas are not present. The histogram indicated that no isolated areas of elevated activity are present.

Step 2:

Select the statistical tests: The one-sample sign test was selected to assess the data, with α = 0.05 and β = 0.05. The number of sample points calculated (see "Total Surface Activity Measurement Calculation Worksheet") was based on the use of this test. A local area background (LAB) value was subtracted from each gross measurement to calculate a net result, thus the sign test applies (sign test is typically applied only when the contaminant is not present in background).

The performance of the sign test was not necessary due to the fact that each individual net result was less than the DCGL_W. Thus, the sign test would result in the rejection of the null hypothesis, and conclude that the median concentration of residual radioactivity in the survey unit is less than the DCGL_W.

Step 3:

Verify the assumptions of the test: The assumed data variance, as indicated by the assumed standard deviation was verified by re-calculating the required number of samples with the ACTUAL survey unit standard deviation.

The actual total surface contamination standard deviations for <u>Unit C</u> are: α 28.7 β 215

Thus, the ACTUAL required number of samples is as follows:

$$\Delta/\delta = (DCGL_{TSA} - LBGR_{TSA})/SD_{TSA}$$

 α $\Delta/\delta_{transuranics} = (100 \text{ dpm/}100\text{cm}^2 - 50 \text{ dpm/}100\text{cm}^2)/\frac{28.7}{28.7} \text{ dpm/}100\text{cm}^2 = \frac{1.74}{28.7}$

 β $\Delta/\delta_{transuranics} = (5000 \text{ dpm/}100\text{cm}^2 - 2500 \text{ dpm/}100\text{cm}^2)/ 215 \text{ dpm/}100\text{cm}^2 = 11.6$

Where:

Δ/δ is the relative shift or the resolution of measurements in units of measurement

uncertainty

DCGL TSA is the total surface Activity derived concentration guideline value (DOE Order 5400.5 total surface

Activity limit equals 100 dpm/100cm² for transuranics and 5000 dpm/100cm² for uranium, per the

T112A-C Pre Demolition Survey Plan)

LBGR TSA is the lower bound of the gray region – the lower bound of the range of values of the parameter of

interest in a survey unit where the consequences of making a decision error is relatively minor (set equal

to the value utilized in the original sample size calculation).

SD TSA is the ACTUAL standard deviation of the total surface Activity

Determine the Sign P value by looking up the relative shift (Δ/δ) in Table 5.4 of MARSSIM (the Sign P value is the estimated probability that a random measurement from the survey unit will be less than the DCGL when the survey unit median is actually at the LBGR). The Sign P value from Table 5.4, equals 0.998650 for a relative shift of 3.0 (Actual value approaches one. The highest published value is utilized for conservatism).

Survey Area: T112 Building: T112C
Survey Unit: C (T112C Exterior)

Post Survey Total Surface Activity Summary Statistics Calculation Verification Worksheet

Step 3: Continued

Determine the number of TSA surface Activity measurements for the applicable survey unit using the following

MARSSIM, Section 5.5.2.3 formula that is based on Plutonium contaminants not being present in the background:

 α and β

 $N = (1.645 + 1.645)^2 / 4(Sign P - 0.5)^2$

 $N = (1.645 + 1.645)^{2}/4(0.998650 - 0.5)^{2} = 10.9$

Where:

1.646

is the alpha and beta decision error value (95% confidence) per the T112A-C Pre Demolition

Survey Plan

Sign P

equals 0.998650

Step 4: Increase N by 20% to allow for missing or invalid data points per MARSSIM, Section 5.5.2.3.

N = 10.9 * 1.2 = 13

Conclusion: Utilizing a conservative relative shift value of 3.0, a minimum of <u>13</u> Total Surface Activity measurements were required in <u>Unit C</u>.

Step 4:

Draw conclusions from the data: All measurements are less than DCGL_w. The minimum number of required TSA measurements were collected. Thus, survey <u>Unit C</u> complies with the TSA release criteria.

D. A. BARNES	Abs	8-19-99
Prepared By: Printed Name	Radjølogical Engineer Signature	Date
ESPASROUES	Mostabali	8/19/89
Reviewed By: Printed Name	Radiological Engineer Signature	Date

Building T112C Floorplan

Room 5	Room 6
Room 4	
Room 3	Room 7
Room 2	
Room 1	

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1. Source activity in cpm is equal to the source activity in dpm multiplied by the efficiency.

REVIEWED BY:

NO SUPERVISOR PRINT NAM

2. Acceptable range is a + 20% (source activity in cpm multiplied by 0.8 or 1.2).

RO SUPER VISOR SIGNATURE

18-17-99

3. All counts are to be I minute in duration.

NOTE

If the instrument will be used for alpha measurements only, the beta portion of the test log should be lined through. If the instrument will be used for beta only, then the alpha portion should be lined through.

162

Qatc

ROCKY FLATSENVIRONMENTAL TECHNOLOGY SITE

SWIPE COUNTER PA	: Carolany in the second
	ALPHA BETAR
INSTURMENT MODEL: (Circle One)	
SAC-(IBC-41) LUDLUM 2929 Counter Serial No. 1.	BC 762 Calibration Due Date: 11-20-99
SAC-(IBC-4 DUDLUM 1919 - "Council Scription	Building: 549 Location: office
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INSTURMENT MODEL: (Circle One)	
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Approved by : ()	O.atc

ROCKY FLATSENVIRONMENTAL TECHNOLOGY SITE

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INSTURMENT MODEL: (Circle Une) 6AC-4/BC-4/LUDLUM 2929 Counter Serial No	
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3. All counts are to be1 minute in duration.

NOTE If the instrument will be used for alpha measurements only, the beta portion of the test log should be lined through. If the instrument will be used for beta only, then the alpha portion should be lined through.

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RS FORMS 02.01.0

ROCKY FEATSENVIRONMENTAL TEGENOLOGY SITE

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RS FORMS 02.01-03

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ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE

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SWIPE COUNTER	PERFORMANCE LOC :
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INSTURMENT MODEL: (Circle One)	Calibration Due Dage 10-13-99
SAC-1/BC-4/LUDLUM 2929 Counter Scrial No.	1. 02 Candidate Date 16-13-99
Start Date: 8-114-99 End Date: 8-22-99	Building: 549 Location: office
	830 Certification Due Date: WIA
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RS FORMS 02.01-03

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SWIPE COUNTER	PERFORMANCE LOC :
MSTURMENT MODEL: (Circle One)	O'C ALPHA G BETA'C
CACA BCA / LUDLUM 2929 Counter Serial No.	Building: 549 Location: office
Start Date: 8-16 60 End Date: 5-22-99	Building: 549 Location: Office
Source: S/N D. P. M .: 248	Certification Due Date: N/A-
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Yims: n/a 6	Time_
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(Print Name / Signature) 7. Error: -14.9	Net cpm = gross - background cpm
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E = Efficiency-011 for the SAC-1 and 0.25 for the BC-1	

Approved by

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	INSTRUMENT DATA					,			
Mfg.	Eberline Mfg. Eberline Mf	g	<u>:</u>		Surv	ey TypeO	A SWIPE SU	RVEY	
	el <u>SAC-4</u> Model <u>SAC-4</u> Mo	del			Build	ling:	Γ112 A, B &C		
Seria		ial#		<u> </u>		tion:			
	Due 10/26/99 Cal Due 10/13/99 Cal				Purp	ose: MARS	SIM Release	Survey	
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n -	Eberline Mfg. Eberline Mf					•	_		
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3	T112A ROOM 8 WALL P2+	0.0	4	\	223	· MA		 	
II	T112A ROOM 9 FLOOR A3*	0.0	-36	1		110:			
5	T112A ROOM 11 WALL K1*	0.0	-32						
6	T112A EXTERIOR WEST WALL BI*	0.0	-28		26				
7	T112A EXTERIOR NORTH WALL A1*	0.0			27	1 1 1		<u> </u>	
8	T112A EXTERIOR EAST WALL K3*	1.5;	20,		28		<u> </u>		
9	T112A EXTERIOR SOUTH WALL E3*	0.0	-48	\{\	29		<u> </u>		
10	T112A EXTERIOR ROOF A2*	0.0	40 "	NA	30		N/A		
11	T112B ROOM 1 CEILING B3*	. 4.5	-24		31				
12	T112B ROOM 2 FLOOR H1*	0.0	-20		32				
11	T112B EXTERIOR SOUTH WALL E2*	4.5	24		. 33				
14	T112B EXTERIOR NORTH WALL LI*	1.5	-24	IT	34				
15	T112B EXTERIOR ROOF F1*	0.0	0		35	:			
11	T112C ROOM 1 FLOOR CI*	0.0	:4	1.	36	: : :	 -	IN	
li —	T112C ROOM 3 WALL J2*	0.0	20		37			1-1-	
B	T112C ROOM 5 WALL HI*	0.0	-56	<u>. </u>	38				$\setminus \vdash$
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-	T112C EXTERIOR ROOF M3*	4.5	4		40		 _	 	++
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T112 QA swipe survey

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	INSTRUMENT DATA					·			·				
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	(Results in DPM/100CM ²)	Alpha	Beta	Alpha	_	#"	<i>.</i>	(Results in DPM	/100GM*)	Alpha	Beta	Alpha	Beta
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Rev. 05/98

	ROCKY FLAT.	S El	VVI.	ROI	VМ	INI	'AL TECHNOLOGY SITE
l	INSTRUMENT DATA				;		
Mfg	. Eberline Mfg. Eberline Mfg	. \				Surv	vey Type QA SWIPE SURVEY
Mod		lel	$\overline{}$			Buile	ding: T112 A, B & C
Seri	al# 835 Serial# 824 Seri	al#	$\overline{}$	7			ation: 280 Yard
Cal	Due 10/26/99 Cal Due 10/13/99 Cal	Due	W			Purp	ose: MARSSIM Release Survey
Bkg	0.1 cpm Bkg. 0.0 cpm Bkg.		7				
Effic	iency 33 % Efficiency 33 % Effici			\mathcal{T}		RW	P#: N/A
MD	A $6.5 \text{ dpm} \text{ MDA}$ $6.5 \text{ dpm} \text{ MD}$	A		$\overline{}$,		
						Date	e: 08-16-99 Time: 14:00
Mfg	. Eberline Mfg. Eberline Mfg	.\					
Mod						RCT	: Hersey / (lense)
Seri	al# 700 Serial# 770 Seri	al#	$\overline{}$				Print name Signature
Cal	Due 10/22/99 Cal Due 1/7/00 Cal	Due	in				
Bkg			7		cpm	RCT	Espinoza / APULOZO
	iency 25 % Efficiency 25 % Efficiency			7	%		Print name Signatúre
MD	·				\dpm	ai þ	· · · · · · · · · · · · · · · · · · ·
					:	: 1	
PRI	∠# :		•		٠.		
Con	nments: See individual maps of trailer	s for	surve	y poi	ints	:	
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	Alpha removable was a two minute	e cou	nt.			ļ	
		:	S	URV	/EY	RES	<u>ULTS</u>
ipo	Location/Description	Remo	vable	To	otal	Swipe	Location/Description Removable Total
	(Results in DPM/100CM ²)		Beta		•	#	(Results in DPM/100CM ²) Alpha Beta Alpha Beta
1	T112A ROOM 4 WALL A6*	<6.5	<200	· ·		21	
	TI12A ROOM 6 FLOOR A1*	<6.5	⊘ 200	lacktriangleright		22	
	T112A ROOM 8 WALL P2*	<6.5	₹200	t		23	
4	l''''			+		24	
	THEA ROOM 9 FLOOR AS	<6.5	<200.	+			
5	T112A ROOM 11 WALL K1*	<6.5	<200			25	
6	T112A EXTERIOR WEST WALL B1*	<6:5	<200	-+	-	26	
7	T112A EXTERIOR NORTH WALL A1*	<6:5	<200	+		27 :	
8	T112A EXTERIOR EAST WALL K3*	<6. <u>5</u>	<200:		.,	28	* * * * * * * * * * * * * * * * * * * *
9	T112A EXTERIOR SOUTH WALL E3*	<6.5	<200			29	
10	T112A EXTERIOR ROOF A2*	<6:5	<200	!		30	N/A
11	T112B ROOM 1 CEILING B3*	· <6.š	<200	N	A	31	
12	T112B ROOM 2 FLOOR H1*	<6.5	<200			32	
13	TI12B EXTERIOR SOUTH WALL E2*	<6.5	<200			33	
14	TI12B EXTERIOR NORTH WALL L1*	<6.5	<200			34	- 6 W S
15	T112B EXTERIOR ROOF F1*	<6.5	<200			35	
_	T112C ROOM I FLOOR CI*	<6.5	<200		1	36	
	T112C ROOM 3 WALL J2*	<6.5	√200		1	37	
	TI12C ROOM 5 WALL HI*				1-1		
1	1	<6.5	· ·		1-1	38	
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10	TITIZO EXTERIOR ROOF M3*	<6.5	<200		<u> </u>	40	
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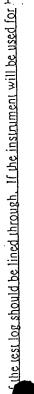
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Source Serial Number		Calibration Due Date	စ	Source Act. (dpm)	. (dpm)		Source Acct (cpm)	Sou	Source Acceptable Range (sq)	
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 Source acuv 	nty in cpm is equa	Source activity in cpm is equal to the source activity in dpm multiplied by the efficiency.	ın apın ına	ιμρμεο υχ σ.	ום בווורוכיורץ.	; }		Variation V	DO CT DED VICED PRINT NA NE	

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RO SUPERVISOR PRINT NAME

3. All counts are to be I minute in duration.

the instrument will be used for alpha measurements only, the beta portion ily, then the alpha portion should be lined through.



^{2.} Acceptable range is a + 20% (source activity in cpm multiplied by 0.8 or 1.2).

Survey Area: T112	Survey Unit: Unit C	Building: T112C
Survey Unit Description	n: Office trailer – Pre Demo	olition Survey

SURVEY PACKAGE COVER SHEET

Classification: Type 1 X Type 2 Type 3 T	
· · · · · · · · · · · · · · · · · · ·	
Contaminants of Concern: Plutonium 🗵 Uranium 🗵 Other 🔲	
Special Support Requirements	
Survey points randomly generated by Radiological Engineering	
Special Safety Precautions	
Per 3-PRO-165-RSP-07.02, "Contamination Monitoring Requirements" and IWCP	
Labeling Requirements	
Not Applicable	
Survey Package Implementation	
This survey package is ready for implementation.	
Ω (2)	G
Radiological Engineer Printed Name Radiological Engineer Signature Date	7
National Engineer Filities I Name	
H-B. ESTABROOKS STEELEN \$/3/99	
RE Peer Review Printed Name RE Peer Review Signature Date	
Survey Package Closure	
All required reviews are complete, and data analysis results meet RLCP criteria. Survey package is	
authorized for closure.	
8-19-9	9
Radiological Engineer Printed Name Radiological Engineer Signature Date	
ESMONOUS TUDANTAM 8/19/25	
RE Manager Printed Name RE Manager Signature Date	

Survey Area: T112 Survey Unit: Unit C Building: T112C Survey Unit Description: Office trailer – Pre Demolition Survey

SAMPLING AND SURVEY INSTRUCTIONS

Measurement	Amount & Type	Comments
Surface Activity Measurements:	16 survey points (alpha & beta, direct & removable) on trailer surfaces.	Representative surveys of the area will be taken for total and removable, alpha and beta contamination in accordance with 3-PRO-165-RSP-07.02, "Contamination Monitoring Requirements" and IWCP
		The RCT will document the readings of all surveys performed.
	5 duplicate survey points for QA purposes.	QA survey points done by different RCT Duplicate smears will be taken at a directly adjacent location.
Surface Scanning:	10% scan surveys on trailer surfaces.	1 m ² scan surveys will be performed at locations indicated.
		Scan surveys of the area will be taken for alpha and beta contamination at a scan rate of 1.5 inches per second.
	5% duplicate scan areas for QA purposes.	QA scan areas done by different RCT
Media Samples:	None	None
Volumetric Samples:	None	None

Building T112C Floorplan

Room 5	Room 6
Room 4	
Воот 3	Room 7
Room 2	
Room 1	.1.

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Appendix 5

RFETS Radiological and Non-Radiological Trailer 112 A-C Characterization Package





Rocky Flats Environmental Technology Site

Radiological and Non-Radiological Characterization Package for Trailers 112A, B, and C

July 1999

Revision 0	
McKnoussand	8/4/99
Marla Broussard RMRS Responsible Manager	Date
Ac N. floore	8/4/99
Jim Moore RMRS Quality Assurance	/ Date /
Approved by:	8/4/95
Jeff Stevens Manager, D&D Advanced Planning Kaiser-Hill Company	Date

Table of Contents for Characterization Package for Trailers T112A, T112B, and T112C

1.0	Introduction		2
2.0	Characterization Instruction for Radiological Surveys		
	Package A		3
	Package B	*	9
	Package C		.13
	Package D	•••••	17
3.0	Characterization Instruction for Non-Radiological Sampling	••••••	20

8/4/99

1.0 INTRODUCTION

PRE-DEMOLITION

This Characterization Instruction is designed to describe the necessary surveys and sampling for characterization and final status survey of RFETS Trailers T112A, B, and C in preparation for release to commerce.

2.0 CHARACTERIZATION INSTRUCTION FOR RADIOLOGICAL SURVEYS

Survey Area: T112	Survey Unit:	Unit A	Building: T112A
Survey Unit Description	n: Office trailer	– Pre Dem	nolition Survey

SURVEY PACKAGE COVER SHEET

Building Information			
Classification: Type 1 🗵 Type 2	Type 3		
Classification. Type 1 Ext Type 2 Ext	гурез 🎞		•
Contaminants of Concern: Plutonium	☑ Uranium [X Other 🔲	
Special Support Requiren	nents		
Survey points randomly generated by	Radiological E	ingineering	
Special Safety Precaution Per 3-PRO-165-RSP-07.02, "Contamination of the contamination of the		ing Requirements" and IWCP	
Labeling Requirements			
Not Applicable		• .	
Survey Package Impleme	ntation		
This survey package is ready for imple	ementation.		
D. A. BARNES		asz.	8-3-99
Radiological Engineer Printed Name		Radiological Engineer Signature	Date
H.B.ESTABROOKS		Mortalain	8/3/98
RE Peer Review Printed Name		RE Peer Review Signature	Date
Survey Package Closure			
All required reviews are complete, and authorized for closure.	l data analysis	results meet RLCP criteria. Survey p	ackage is
Radiological Engineer Printed Name	Employee #	Radiological Engineer Signature	Date
. to consider any most i mico Marie		, touring our mighton organism	0000
	<u> </u>	051	
RE Manager Printed Name	Employee #	RE Manager Signature	Date

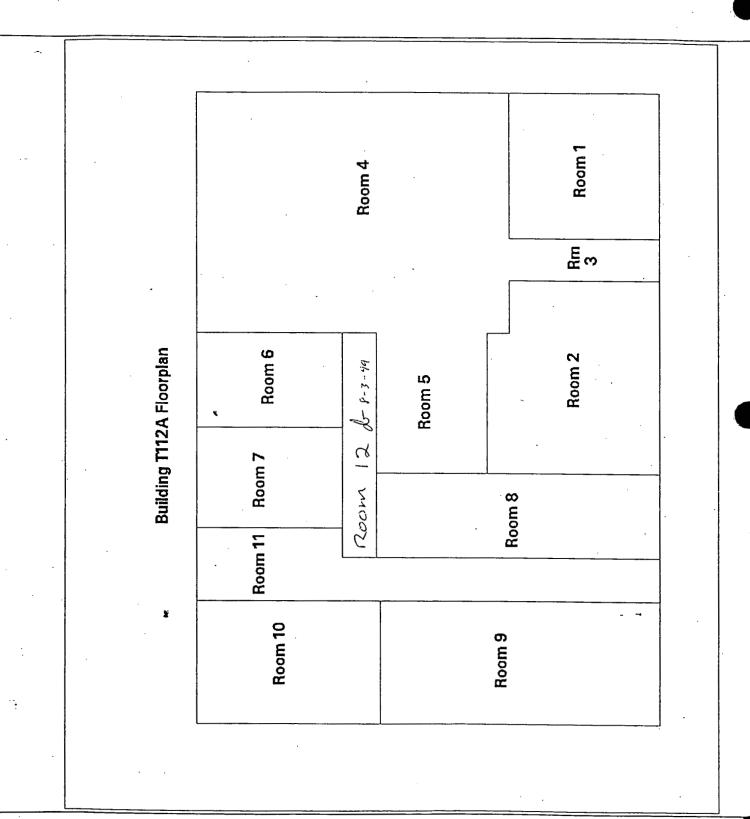
Survey Area: T112 Survey Unit: Unit A Building: T112A

Survey Unit Description: Office trailer – Pre Demolition Survey

SAMPLING AND SURVEY INSTRUCTIONS

Measurement	Amount & Type	Comments
Surface Activity Measurements:	16 survey points (alpha & beta, direct & removable) on trailer surfaces.	Representative surveys of the area will be taken for total and removable, alpha and beta contamination in accordance with 3-PRO-165-RSP-07.02, "Contamination Monitoring Requirements" and IWCP The RCT will document the readings of all surveys performed.
	5 duplicate survey points for QA purposes.	QA survey points done by different RCT Duplicate smears will be taken at a directly adjacent location.
Surface Scanning:	10% scan surveys on trailer surfaces.	1 m ² scan surveys will be performed at locations indicated.
		Scan surveys of the area will be taken for alpha and beta contamination at a scan rate of 1.5 inches per second.
	5% duplicate scan areas for QA purposes.	QA scan areas done by different RCT
Media Samples:	None	None
Volumetric Samples:	None .	None

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8/23

Survey Area: T112	Survey Unit: Unit B	Building: T112B
Survey Unit Description	n: Office trailer - Pre Demo	olition Survey

SURVEY PACKAGE COVER SHEET

Building Information												
Classification: Type 1 🗵 Type 2 🗆	Туре 3 🏻											
	Contaminants of Concern: Plutonium 🗵 Uranium 🗵 Other 🔲											
Special Support Requirem												
Survey points randomly generated by F	Radiological E	:ngineering										
Special Safety Precaution	S											
Per 3-PRO-165-RSP-07.02, "Contamin	ation Monitor	ing Requirements" and IWCP										
Labeling Requirements												
Not Applicable		•										
Survey Package Implemen	ntation	•										
•												
This survey package is ready for imple												
D. A. BAIRNES		bht.	8-3-99									
Radiological Engineer Printed Name		Radiological Engineer Signature	Date									
H. B. BSTABROOKS RE Peer Review Printed Name		Modelatulu	8/3/99									
RE Peer Review Printed Name		RE Peer Review Signature	Date									
Survey Package Closure												
		•										
All required reviews are complete, and	data analysis	s results meet RLCP criteria. Survey p	ackage is									
authorized for closure.	<u> </u>		<u> </u>									
Radiological Engineer Printed Name	Employee #	Radiological Engineer Signature	Date									
RE Manager Printed Name	Employee #	RE Manager Signature	Date									

Survey Area: T112	Survey Unit:	Unit B	Building: T112B
Survey Unit Description	n: Office trailer	- Pre Demo	olition Survey

SAMPLING AND SURVEY INSTRUCTIONS

Measurement	Amount & Type	Comments
Surface Activity Measurements:	16 survey points (alpha & beta, direct & removable) on trailer surfaces.	Representative surveys of the area will be taken for total and removable, alpha and beta contamination in accordance with 3-PRO-165-RSP-07.02, "Contamination Monitoring Requirements" and IWCP The RCT will document the readings of all surveys performed.
	5 duplicate survey points for QA purposes.	QA survey points done by different RCT Duplicate smears will be taken at a directly adjacent location.
Surface Scanning:	10% scan surveys on trailer surfaces.	1 m ² scan surveys will be performed at locations indicated.
		Scan surveys of the area will be taken for alpha and beta contamination at a scan rate of 1.5 inches per second.
	5% duplicate scan areas for QA purposes.	QA scan areas done by different RCT
Media Samples:	None	None .
Volumetric Samples:	None	None

Building T112B Floorplan

Room 2

Room 1

961

112 Trailers PDS Unit B - T112B SURVEY POINTS

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Survey Area: T112	Survey Unit: Unit C	Building: T112C
Survey Unit Description	n: Office trailer - Pre Dem	olition Survey

SURVEY PACKAGE COVER SHEET

Building Information												
Classification: Type 1 X Type 2	Туре 3 🔲											
Contaminants of Concern: Plutonium	Contaminants of Concern: Plutonium 🗵 Uranium 🗵 Other 🔲											
Special Support Requirem			•									
Survey points randomly generated by F	Radiological E	Engineering										
Special Safety Precautions												
Per 3-PRO-165-RSP-07.02, "Contamin		ring Requirements" and IWCP										
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Labeling Requirements		-										
Not Applicable												
Survey Package Implemen	ntation											
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This survey package is ready for imple	mentation	0 (0										
D. A. BAIRNET		1/2	8-3-99									
Radiological Engineer Printed Name		Radiological Engineer Signature	Date									
H.B. ESTABROOKS		A Statule	8/3/99									
RE Peer Review Printed Name		RE Peer Review Signature	Date									
Survey Package Closure												
		•										
All required reviews are complete, and	data analysis	s results meet RLCP criteria. Survey p	ackage is									
authorized for closure.			·									
Radiological Engineer Printed Name	Employee #	Radiological Engineer Signature	Date									
·												
RE Manager Printed Name	Employee #	RE Manager Signature	Date									



Survey Area: T112	Survey Unit: Unit C	Building: T112C
Survey Unit Description	n: Office trailer – Pre Dem	olition Survey

SAMPLING AND SURVEY INSTRUCTIONS

Measurement	Amount & Type	Comments
Surface Activity Measurements:	16 survey points (alpha & beta, direct & removable) on trailer surfaces.	Representative surveys of the area will be taken for total and removable, alpha and beta contamination in accordance with 3-PRO-165-RSP-07.02, "Contamination Monitoring Requirements" and IWCP The RCT will document the readings of all surveys performed.
	5 duplicate survey points for QA purposes.	QA survey points done by different RCT Duplicate smears will be taken at a directly adjacent location.
Surface Scanning:	10% scan surveys on trailer surfaces.	1 m ² scan surveys will be performed at locations indicated.
		Scan surveys of the area will be taken for alpha and beta contamination at a scan rate of 1.5 inches per second.
	5% duplicate scan areas for QA purposes.	QA scan areas done by different RCT
Media Samples:	None	None
Volumetric Samples:	None	None

Building T112C Floorplan

Room 5	Room 6
Room 4	
Room 3	Room 7
Room 2	
Room 1	

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16/23

Survey Area: T112	Survey Unit:	Unit D	Building: T112A
Survey Unit Description	n: Office trailer	- Pre Dem	olition Survey

SURVEY PACKAGE COVER SHEET

Building Information			
Classification: Type 1 🗵 Type 2 🗖	Туре 3 🔲		·
_			
Contaminants of Concern: Plutonium		Other	
Special Support Requiren			
Survey points randomly generated by I	Radiological E	ngineering	*
Special Safety Precaution Per 3-PRO-165-RSP-07.02, "Contamir		ing Requirements" and IWCP	
Labeling Requirements Not Applicable			
Survey Package Impleme	ntation		
This survey package is ready for imple	mentation.		
D. A. BARNES		All.	8-3-99
Radiological Engineer Printed Name		Radiological Engineer Signature	Date
H.B.ESTABROVES	_	Mostalialis	8/3/99
RE Peer Review Printed Name		RE Peer Review Signature	/ Date
Survey Package Closure			
All required reviews are complete, and authorized for closure.	data analysis	results meet RLCP criteria. Survey	package is
			·
Radiological Engineer Printed Name	Employee #	Radiological Engineer Signature	Date
		·	
RE Manager Printed Name	Employee #	RE Manager Signature	Date



Page 1 of 2

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Survey Area:	T112	Survey Unit:	Unit D	Building: T112A	•
Survey Unit D	escriptio	n: Office trailer	– Pre Dem	olition Survey	

SAMPLING AND SURVEY INSTRUCTIONS

Measurement	Amount & Type	Comments
Surface Activity Measurements:	16 survey points (alpha & beta, direct & removable) on trailer surfaces.	Representative surveys of the area will be taken for total and removable, alpha and beta contamination in accordance with 3-PRO-165-RSP-07.02, "Contamination Monitoring Requirements" and IWCP The RCT will document the readings of all surveys performed.
	5 duplicate survey points for QA purposes.	QA survey points done by different RCT Duplicate smears will be taken at a directly adjacent location.
Surface Scanning:	10% scan surveys on trailer surfaces.	1 m ² scan surveys will be performed at locations indicated.
	·	Scan surveys of the area will be taken for alpha and beta contamination at a scan rate of 1.5 inches per second.
	5% duplicate scan areas for QA purposes.	QA scan areas done by different RCT
Media Samples:	None	None
Volumetric Samples:	None	None

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3.0 CHARACTERIZATION INSTRUCTION FOR NON-RADIOLOGICAL SAMPLING

Page <u>20</u> of <u>23</u>

NON-RADIOLOGICAL CHARACTERIZATION PACKAGE COVER SHEET

Building Information		
Classification: Type 1 X Type 2] Type 3 □	
Contaminants of Concern: Plutonium	☑ Uranium ☑ Other ☑ RCRA Constitu	uents,
Lead, Beryllium, PCBs,	Asbestos	
Special Support Requirer	nents	
None.	_	
Special Safety Precaution	าร	·
None.		
Labelia a Descriptora esta		
Labeling Requirements	•	
Characterization Instruct	ion Implementation	
	mentation. Adequate detail is provided satisfy DQO's.	
data evaluation requirements are cover MAN-077-DDCP.	red in the Decontamination and Decommissioning Chara	cterization Protocol,
MAN-077-BBCI		
Paul A. Wojtaszek	Part A West	08/04/19
Preparer Printed Name	Preparer Signature	Date
Jim Moore	TaH. bloom	8/4/99
Reviewer Printed Name	Reviewer Signature	Date

21/23

SAMPLING AND SURVEY INSTRUCTIONS

Sampling Requirements: No sampling for non-radiological contaminants is required for this characterization. All characterization for non-radiological contaminants will be done using historical data.

Measurement	Amount & Type	Comments
RCRA constituents	None	According to historical data and process knowledge, no chemicals were used or stored in any of the three trailers (D&D Facility Characterization Interview Checklist and Attached Facility Checklist and HRR Manager's Report). Therefore, sampling for chemical contaminants is unnecessary and will not be conducted.
Lead (Pb) in paint	None	Wooden stairs and platforms have been attached to the trailers and are coated with paint which has not been characterized for Pb content. These stairs and platforms will be disposed of as waste. However, Environmental Waste Compliance Guidance #27, Leadbased Paint (LBP) and Lead-based paint Debris Disposal, has directed that LBP debris generated outside of currently identified HCA's shall be managed as non-hazardous (solid) wastes, and additional analysis for characteristics of hazardous waste derived from LBP is not a requirement for disposal. Therefore, analysis of Pb in paint from wooden stairs and platforms is unnecessary and will not be conducted.
		The paint on the interior and exterior surfaces of the trailers has not been characterized for Pb in paint. Such characterization is not required for release of the trailers to commerce. Therefore, analysis of Pb in paint from the interior and exterior surfaces of the trailers is unnecessary and will not be conducted.
Beryllium	None	There is no record of beryllium operations or storage being carried out in any of the three trailers (D&D Facility Characterization Interview Checklist and Attached Facility Checklist and HRR Manager's Report, and List of Known Beryllum Areas). Additionally, these trailers have been used as administrative office space since their arrival on site, and the RFETS Administrative Equipment Characterization for Beryllium Contamination Project Plan Report showed no detectable beryllium contamination in the
		60 RFETS buildings with no record of beryllium activities that were studied. However, since T112 A, B, and C were not included in that study,

		· · · · · · · · · · · · · · · · · · ·
·		the CBDPP conducted an independent beryllium survey of T112A, which confirmed absence of detectable beryllium contamination. The results of this survey will be included in the T112 RLCR. No additional beryllium sampling will be conducted as part of this characterization package.
Polychlorinated biphenyls (PCBs)	None	A high voltage electrical power transformer is mounted on a concrete pad outside the southwest corner of T112A, and is labelled "No PCBs." There is no record of PCB use or storage in any of the trailers (D&D Facility Characterization Interview Checklist and Attached Facility Checklist and HRR Manager's Report). Therefore, analysis for PCBs within the trailers is unnecessary and will not be conducted.
		Wooden stairs and platforms have been attached to the trailers and are coated with paint which has not been characterized for PCB content. These stairs and platforms will be disposed of as waste. However, Environmental Waste Compliance Guidance #25, Management of Polychlorinated Biphenyls (PCBs) in Paint and Other Bulk Product Waste During Facility Disposition, has directed that applied dried paints, varnishes, waxes, or other similar coatings or sealants are acceptable for disposal (with notification) in a non-hazardous solid waste landfill as PCB Bulk Product Waste under 40 CFR 761.3 and 40 CFR 761.62 paragraph (b) and therefore need not be sampled as long as restrictions outlined in 40 CFR 761.62 regarding their disposal are met.
		Additionally, while the paint on the interior and exterior surfaces of the trailers has not been characterized for PCBs in paint, such characterization is not required for release of the trailers to commerce. Therefore, analysis of PCBs in paint from the interior and exterior surfaces of the trailers is unnecessary and will not be conducted.
Asbestos	None	Historical asbestos inspection data exist for T112 A,B, and C. Thirteen samples of floor tile, wall, and ceiling material were taken in T112A, and of these, 4 floor tile samples were determined to be asbestos-containing. Six samples of floor tile, wall, and ceiling material were taken in T112B, and of these, 1 floor tile sample was determined to be asbestos-containing. Nine samples of floor tile, wall, and ceiling material were taken in T112C, and no asbestos was detected. For release to commerce, this information must be disclosed, but further characterization is unnecessary. Therefore, no further asbestos inspection or sampling will be conducted.

Revision 1 Page 40 of 43

Appendix 6

Final Sampling: Analysis Plan For Roofing Material from Trailers T112A and T112B for Isotopic Analysis, (RF/RMRS-99-332)



M 07/1/99



Final Sampling and Analysis Plan for Roofing Material from Trailers T112A and T112B for Isotopic Analysis

RF/RMRS-99-332

JUL 2 1 1999



July 21, 1999

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This is a
CONTROLLED DOCUMENT
ROCKY FLATS PLANT
This is a RED stamp
COPY HOLDER NO. 601

Administrative Information

Site:

Rocky Flats Environmental Technology Site

Golden, Colorado

Project Name:

Sampling of Roofing Material From Trailers T112A and T112B

for Isotopic Analysis

Date Prepared:

July 20, 1999

Date Effective:

July 21, 1999

Approvals

I have read and approved this sampling and analysis plan with respect to the objectives of the project.

Paul A. Wojtaszek

Project Manager, Document Co-Author

Hopi Salomon

Document Peer Review

Dave Barnes

Radiological Engineer, Document Co-Author

Greg Dibregorio

RMRS Quality Assurance

Marla Broussard

Manager, Characterization

7/21/99

7/21/99

1.0 INTRODUCTION

Trailer T112A was assembled at Central Avenue and Fourth Street, behind the northwest corner of Bldg. 112, in the early 1960's. The size of the T112A is approximately 45' X 60' and it is assembled from 5 trailer units of approximately 12' X 45' in size. The siding and the skirting (which is approximately 28" high) consists of enamel on aluminum. The trailer is structurally sound. The foundation is concrete blocks and the tie down method for the unit is steel cable from the trailer's I-beam secured to concrete caissons. T112A is unoccupied at the present time, but has previously served as office space for a travel office, transportation security scheduling office, and company store.

Trailer T112B was moved to Central Avenue and Fourth Street, behind the northwest corner of Bldg. 112 in 1990 or 1991 from the Bldg. 771 trailer park. At this time the interior was refurbished. T112B has a nearly full length wooden deck with a sloped roof on its south side. The siding and the skirting consists of enamel on aluminum. It has served as a site for folding laundry, telecommunications office space, and storage of telecommunications equipment. It is presently unoccupied. The tiedown method is unclear due to the intact skirting.

Trailer T112C was put in place at Central Avenue and Fourth Street, behind the northwest corner of Bldg. 112 in 1991. The entryways are covered by wooden panels. The siding and the skirting consists of enamel on aluminum. It has served as office space for the Wackenhut scheduling office. It is presently unoccupied. The tiedown method is unclear due to the intact skirting.

Asbestos characterization data exist for the interior of both trailers, and show asbestos in the floor tile mastic. Hazardous chemicals were not known to be used or stored in these trailers. The tailers have not been characterized for use of lead-based paint.

The purpose of this Sampling and Analysis Plan (SAP) is to collect data to satisfy data gaps regarding radiological contamination of the roofing material of T112A and T112B.

Due to past RFETS experience with the unrestricted release of similar structures it is considered prudent to obtain two media samples each from the roofing material of both T112A and T112B, for a total of four samples. Samples will be taken by the RFETS CAS sample team in accordance with CAS SOP-003, Commodore Advanced Sciences, Waste Characterization Procedure, and section 3.1.1.2 of the Pre-Demolition Survey Plan, excerpted in Section 3.0, Sample Collection and Analysis.

2.0 DATA QUALITY OBJECTIVES

Decisions must be made as to whether Trailers T112A, T112B, and T112C are radiologically contaminated or eligible for free-release from the site. These decisions will be based on both radiological surveys and radiochemistry samples. This SAP and the DQOs within it only address the radiochemical characterization needs of the project, as radiological surveys shall be covered in a separate characterization package. Further, radiochemistry samples must be collected at the earliest possible time in the project to comply with the project's schedule constraints. Based on visual inspections and historical use of the trailers for administrative purposes only, potential of chemical hazards within or on the trailers has been ruled-out.

The Problem

The quantity and types of radioactivity and radioactive contamination present in and on the trailer are not known with adequate confidence to ensure compliance with free-release criteria; therefore, adequate measurements must be taken to properly characterized the trailers as contaminated or not contaminated. All areas of the trailer shall be characterized through radiological surveys; however, actinides of interest within bulk material on two of the trailer rooftops (Trailers 112A and 112B) must be established through radiochemical analysis because initial radiological surveys (fixed contamination) indicate contamination, but based on site history and process knowledge, naturally-occurring radionuclides (not of DOE origin) are suspected.

Identification of Decisions

What types and quantities of radioactive contamination exist in the bulk matrix of roofing materials, and if present, is contamination above or below free-release levels for the actinides of interest?

Inputs to the Decisions

Inputs to the decision rule include

- radiochemistry results (Pu-239/40, Am-241, U-233/234, U-235, and U-238) from the four samples of interest -- 2 from Trailer 112A and 2 from Trailer 112B,
- quality assurance aspects of the data, including precision, accuracy, representativeness, completeness, and comparability (i.e., the PARCC parameters),
- gross alpha & beta (for DOT shipping limits and compliance),
- unrestricted release criteria (1-P73-HSP-18.10, Appendix 1).

Radiological instrumentation planned for the project is controlled by K-H Analytical Services Division through contractual requirements with onsite and offsite (radiochemistry) vendors. All instrument sensitivities are adequate for producing results comparable to free-release action levels and compliance with DOT requirements.

Definition of the Boundaries

Three-dimensional boundaries for defining the levels and extent of radioactive contamination are given restricted to the Trailer rooftop exteriors referenced above.



There are no temporal boundaries relative to technical data quality; time constraints depend only on project schedule.

Decision Rules

After conversion of radiochemistry concentrations (from bulk samples) to dpm/100 cm², if the sum-of-ratios of the collective suite of actinides is less than unity (1) for each sample (using the Appendix 1, 1-P73-HSP-18.10 [based on DOE Order 5400.5] free-release level of 100 dpm/100cm2 in the denominator of each ratio), the associated rooftop contains no DOE-added radiological contamination; otherwise, the rooftop material is contaminated and is considered low-level waste.

The use of this decision rule has precedence through its implementation by radiological engineering on the Building 779 Decommissioning Project, and subsequent approval of the methodology and results by DOE RFFO, CDPHE, and EPA Region VIII.

Limits on Decision Errors

Based on homogeneity of the bulk material in question, a statistical sampling of the roofs in not necessary, and thus statistical error on the sample set results is not applicable. Random counting errors that are actinide- and sample-specific will be reported with all results, and are typically <10% at elevated levels and <20% at levels near the MDC.

Optimization of the Sampling Design

If results indicate contamination levels greater than free-release levels, additional samples will be planned to better characterize the trailers in total.

3.0 SAMPLE COLLECTION AND ANALYSIS

T112A is constructed with a tar paper roof that has been painted at some time after installation with a heat reflective paint.

T112B has a heavily oxidized metal roof. Previous surveys of site trailers of similar age and construction have exhibited high alpha count rates due to the deposit of naturally occurring radioactive materials (such as Po-210 or radon daughters) in this porous oxide layer.

For each trailer (T112A and T112B), two locations will be selected by Radiological Engineering based on experience and professional judgement. A minimum of 125 gm is required for each analytical sample, and an additional 125 gm is required for the accompanying radscreen sample at each sample location. The radscreen sample will be taken immediately adjacent to the analytical sample. The individual weight of all samples will be determined using a calibration-certified scale and recorded. The samples will consist of square or rectangular sections with a surface area of a minimum of 100 cm². and this surface area will be measured with a ruler or tape measure and recorded. These samples will be sent to an off site laboratory and analyzed for the five RFETS isotopes of concern (Pu-239/40, Am-241, U-233/234, U-235, and U-238) to ensure that no DOE



radioactive material is trapped beneath the heat reflective paint. The analytical laboratory Statement of Work will be modified such that the complete sample is tare weighed and digested, and that in addition to providing a concentration-based result (i.e., pCi/gm), the laboratory will be required to provide a total activity per isotope for the entire sample.

Pre-sampling and post-sampling radiological surveys will be required.

NOTE: T112C, which is also located in the vicinity of T112A and T112B, is the youngest of the three trailers and has a rubberized textile roof that is in good condition. Little or no alpha activity is anticipated. Its roof will not be sampled since previous survey activities exhibited activity less than DCGLs.

Samples will be collected using the sampling techniques described in CAS SOP-003, Commodore Advanced Sciences, Waste Characterization Procedure. Roofing material will be removed utilizing a utility knife or tin snips, as required by the material. A water spray mist will be used as necessary in order to prevent generation of dust, due to the (low) potential for asbestos in the roofing material. No asbestos characterization of the roof will be performed. Glass sample jars will be used to collect samples, and signed custody seals will be applied after sample collection. Quality control samples, such as rinsates, duplicates, and trip blanks, are not required for this effort.

4.0 SAMPLE DESIGNATION

Each sample will be assigned a unique number in accordance with the RFETS Analytical Services Division (ASD) requirements. The unique sample number will be broken down into the following three parts:

- Report Identification Number (RIN)
- Event Number
- The Bottle Number

The first part of the number will be the RIN, which is assigned by the ASD. The RIN is used by the ASD to track and file analytical data. It is expected that one RIN will be assigned, however, if the project is not completed quickly, ASD may assign additional RINs. The RIN will be a seven digit alphanumeric code starting with "99" for 1999. The RIN will be followed by a dash "-" and then the event number. The event number is a three digit code, starting with "001" under the RIN, and will be sequential. Each typical sample location will have a unique event number under the RIN. The event number will be followed by a period "." and then the sequential bottle number. The bottle number will be used to identify individual sample containers collected at the same location and same event number.

In addition to the sample numbering scheme above, additional information will be collected with respect to each sample. This additional information will include:



- Sample type
- Location code

5.0 SAMPLE HANDLING AND DOCUMENTATION

Sample custody will be maintained and documented using RFETS chain of custody forms. Sampling equipment (e.g., utility knife, tin snips) will be decontaminated between sampling locations. Decontamination will be performed using a spray rinse of distilled or deionized water followed by wiping with a KimwipeTM. The sampling tool will then be visually verified free of contamination, prior to its next use. Sampling information shall be documented on field log sheets or notebook. The originator shall authenticate (legibly sign and date) each completed hardcopy of the data. A peer reviewer, someone other than the originator, shall perform a review of the logsheet/notebook. The peer reviewer shall authenticate each hardcopy completed by the originator. Any modifications shall be lined-through, initialed, and dated by the reviewer (in ink). The QA Records for the project include the field log sheet and chain-of-custody forms.

6.0 PROJECT ORGANIZATION

Table 6-1 lists the responsible personnel assigned to this project, their responsibilities and contact information.

Table 6-1 Personnel Supporting the T112 A and T112B Roofing Characterization

Name	Responsibility	Phone	Pager	Radio
Paul Wojtaszek	Project Manager	3125	None	3723
Dave Barnes	Radiological Engineer	5352	212-6541	3759
Dave Farler	Industrial Hygiene	4340	212-6555	3734
Dan Lippencott	Commodore Sample	5267	212-3129	3502
William Santiago	Team			
Michelle Hershey		i ·		
Greg DiGregorio	Quality Assurance	5688	212-6206	none
Marla Broussard	Characterization Manager	6007	212-6261	none
Stan Jablkowski	Radiological Control	2397	none	none
	Technician			
Letty Cooper	Radiological Operations	2397	212-2333	3208
	Supervisor		•	

Appendix 7

Historical Inspection Report for T112A

NV[AD] LAB NO. 1896

ASBESTOS - TEM, PCM, PLM, SEM METALS - AA, FLAME/FURNACE AIRBORNE PARTICULATES SPECIAL PARTICLE ANALYSIS



RESERVOIRS ENVIRONMENTAL

SERVICES, INC.

1827 GRANT STREET

DENVER, COLORADO 80203

(800) 678-7374

(303) 830-1986

FAX (303) 863-9196

July 18, 1994

Ms. Julie Linkus EG&G Rocky Flats Plant PO Box 464 Golden, CO 80402-0464

Samples: Bulk 23586JL/147A 20768 -RE: Job No. RES 112A9407137303, 112A9407137301, 112A9407137302, 112A9407137306, 112A9407137305, 112A9407137304, 112A9407137308, 112A9407137309, 112A9407137307, 112A9407137312 112A9407137311, 112A9407137310, 112A9407137313.

Dear Ms. Linkus:

Reservoirs Environmental Services, Inc. (RES, Inc.) has analyzed 13 bulk material samples by Polarized Light Microscopy (PLM) for asbestos content as per your request. The samples were received on July 14, 1994, and initial results were telephoned to your office on July 18, 1994. PLM was used to analyze the bulk materials in compliance with guidelines established by the USEPA (40 CFR Part 763, Subpart F, Appendix A). The Analytical Results are presented in Table I.

RES, Inc. has assigned job number RES 20768 to this study. This report is considered highly confidential and the sole property of EG&G Rocky Flats Plant. RES, Inc. will not discuss any part of this study with personnel other than those of the client company. Samples will be disposed of after sixty days unless longer storage is requested. The US EPA guideline (40 CFR Part 763, Subpart F, Appendix A) was developed for use on friable building materials and is not recommended for non-friable materials such as floor tiles. RES, Inc. recommends additional analyses to confirm negative PLM results on floor tiles.



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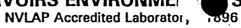


TABLE I. PLM BULK ANALYSIS, PERCENTAGE COMPOSITION BY VOLUME

RES Job Number:

RES 20768

Slient:

EG&G Rocky Flats Plant

Client Project:

23586JL/147A,

Date Samples Received: Analysis Type:

July 14, 1994

PLM Short Report

Jurnaround:

3-5 Day

Client	Lab ID Number	TOTAL	ŗ	Physical Description	Portion of Total	ASBESTOS CO BY LAYER	ONTENT					orous		Non-Fibrous
Sample Number	Number	ASBESTOS	a y e	Description	Sample (%)	BILATER		C	Com G I	Pone S Y	H A	(%) W O	T A	Component (%)
		(%)	r		(,,,	Mineral	Visual Estimate (%)	L L	A S S	N T H	I R	L	, C	
2A9407137301	EM 128531	ND	A B C	Tan paint Tan & brown fibrous material White fibrous plaster	3 12 85		ND ND ND	0 97 10	0 0	0 0	0 0 0	0 0 0	000	100 . 3 90
2A9407137302	EM 128532	ND	A B C	Tan paint Tan & brown fibrous material White fibrous plaster	3 12 85		ND ND ND	0 97 10	0 0 0	0 0 0	0 0 0	0 0 0	0	100 3 90
2A9407137303	EM 128533	ND	A B	White paint Brown fibrous material	. 5 95		ND ND	TR 97	0 0	0 0	0	0 0	0	100 3
2A9407137304	EM 128534	ND	A B	White paint Brown fibrous material	5 95		ND ND	TR 97	0	0	0	0	0	100 3
2A9407137305	EM 128535	ND	A B	White paint Tan fibrous material	5 95		ND ND	TR 97	0 0	0 0	0	0	0 0	100 3
2A9407137306	EM 128536	ND	A B	White paint Tan fibrous material	5 95		ND ND	TR 97	0	0	0 0	0	0	100
12A9407137307	EM 128537	ND	A B	White paint Tan fibrous material	5 95		ND ND	TR 97.	0	0	0	0	0	100 3
						•	ND	0	0	0	0	0	0	100
) = None Detected = Trace	CELL = Cellulo Mat = Material		_			GYP = Gypsum SYNTH = Synth	atic	Analy	st: BC	3				Data QA

SERVICES, INC.

RESERVOIRS ENVIRONME!



NVLAP Accredited Laboratory ... 896

TABLE I. PLM BULK ANALYSIS, PERCENTAGE COMPOSITION BY VOLUME

RES Job Number:

RES 20768

Client:

EG&G Rocky Flats Plant

Tlient Project:

23586JL/147A,

Date Samples Received:

Analysis Type:

July 14, 1994 PLM Short Report

Turnaround:

3-5 Day

Client Sample	Lab ID Number	TOTAL	La	Physical Description	Portion of Total	ASBESTOS CO BY LAYER	NTENT	Nor		besto		orou: %)		Non-Fibrous Components
Number		ASBESTOS	v		Sample			С	G	S	Н	w	, т	(%)
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			é	•	(%)			E	Ĺ	Y	Α	0	Ä	. (70)
		İ	г		,,-,	Mineral	Visual	Ĺ	Ā	N	i	Ĺ	L	Ì
		(%)			İ		Estimate	Ĺ	S	Т	R	Ĺ	Ċ	1
							(%)		s	н				
12A9407137308	EM 128538	ND	Α	Gray resin	5		ND	0	0	0	0	0	0	100
				Tan fibrous woven material w/tan resin	20	}	ND	98	ŏ	Ŏ	ŏ	ŏ	ŏ	2
			С	Gray fibrous woven material w/multicolored fibrous woven material	75		ND	0	0	95	0	0	0	5
12A9407137309	EM 128539	1.8	Α	Gray resinous material	5		ND	0	0	0	0	0	.0	100
		•	В	Tan resin	7]	ND	0	0	0	0	0	Ö	100
			C	Tan fibrous woven material	. 8		ND	98	0	0	0	0	0	.2
			D	White tile	15	Chrysotile	12	0	0	0	0	0	0	88
			E	Silver metalic	25		ND	0	0	0	0	0	0	100
			-	Multicolored fibrous woven material	40		ND	0	0	99	0	0	0	. 1
12A9407137310	EM 128540	1.8	Α	Black fibrous tar	7	Chrysotile	25	5	TR	0	0	0	0	70
			В	Tan resin	8	1	ND	0	0	0	0	0	0	100
			С	Tan fibrous resinous material	25		ИD	40	5	20	0	0	0	35
			D	Multicolored resinous tile	60		ND	0	0	0	0	0	0	100
			<u> </u>											M
D = None Detected	CELL = Cellulo			•		GYP = Gypsum								
TR = Trace	Mat = Material	BRUC = Br	ucite	Trem-Act = Tremolite-Actinolit	0	SYNTH = Synthe	etic							Dáta QA

RESERVOIRS ENVIRONMEI NVLAP Accredited Laboratory ... 1896

ABLE I. PLM BULK ANALYSIS, PERCENTAGE COMPOSITION BY VOLUME

ES Job Number:

RES 20768

lient:

EG&G Rocky Flats Plant

lient Project:

23586JL/147A,

ate Samples Received:

July 14, 1994 PLM Short Report

nalysis Type:

urnaround:

3-5 Day

Client	Lab ID	TOT41	L Physical		ASBESTOS CO	ONTENT	No		best				Non-Fibrous
Sample	Number	TOTAL	a Description	of Total				Con	npon			1	Components
Number		ASBESTOS	Y	Sample			C	G	S	Н	W	T	(%)
			e	(%)	Minaral	V:==!	E	L	Y	Α.	0	A	
		101	ı		Mineral	Visual	L	A	N	-	L	L	
		(%)		•	ł	Estimate	L	S	1	R	L	Ç	
						.(%)		S	Н				
2A9407137311	EM 128541	0.9	A Black fibrous tar	. 3	Chrysotile	30	5	TR	0	0	0	0	65
2/10/10/10/01		***	B Tan & brown resin	7	,	ND	Ö	0	ŏ	ŏ	ŏ	Õ	100
			C Tan fibrous resinous material	25		ND	45	10	10	Ŏ	Ŏ	Ŏ.	35
·	•		D Multicolored resinous tile	65		ND	0	0	0	0	0	0	100
12A9407137312	EM 128542	ND	A Tan fibrous material	3	;	ND	98	0	0	0	0.	0	2 ·
			B Tan resin	7		ND	0	0	0	0	0	0	100
			C White & tan tile	90		ND	0	0	0	0	0	0	100
12A9407137313	EM 128543	2.7	A Black tar	10		ND	TR	0	0	0	0	0	100
			B White & tan tile	90	Chrysotile	3	0	0	0	0	0	0	97
		•				•							0
= None Detected	CELL = Cellulo	-			GYP = Gypsum		•					******	
= Trace	Mat = Material	BRUC = Br	ucite Trem-Act = Tremolite-Actin	olite	SYNTH = Synth	etic							Deta QA

- Annual Control				
1. Sample Jidg-Y-M-I	D-P#-S#)			
112A94 C	57137301 o single		ROCKY FLATS PLANT	
I		INDUST	TRIAL HYGIENE BULK SAM	IPLE FORM
112444 C	1hrough 3 73 & MULTIPLE		•	
	,	6. Analytical Sam	nole Method: PLM	
2. Process Title:		7. Lab Report #:	ipie Metroc.	
3. Subprocess Title: 4. Building/OU Etc.:	T 112A	8. Lab Method:		
5. Chain of Custody Sea		9. Related Forms	· · · · · · · · · · · · · · · · · · ·	
10. Sample #		12. Material Type	13. Bulk Sample Description	14. Results
(Bldg-Y-M-D-P#-S#)				,
11000UNT/3/301	Wall- SW Corner (near water open	el+carer)		
	Wall - East South Middle (Between		RG (0	
110000000000000000000000000000000000000	Ceiling - near Light (East)	INTUS+ FROMS	RG 6	
	Ceiling - above doorway near	· · · · · · · · · · · · · · · · · · ·	RG(0	
112H440 113 1304	Exit sign			
110 89407137305	Ceiling-East (near window)		RG 7	
112A9407137308	Cellion		R67	
W2-00-10-11-12-06	tarilina aus		Re(cus)	
112 AQU6713 7307	Ceiling (Hallway outside Ristroom:	3	R67	
11299407137308	Floor Se corner course+ Flooring		RG8	
	Floor West Behind refrigerator		RG (5)	
II.	Floor Mens Rest Room Entry	1	268	·
	Floor Womens Rest Room Entry		R68	
11040407137318	Floor tile (infront of copies)			
	Floor tile - fant Closet		·	
1,701,101,21012		1		. ,
			/	
15. Sampled by/Date:	Wood 7/13/94	16. Checked by	/Date (Check Back of Form):	
RF-46722 (9/91)				

EG&G Rocky

Plant, Inc.

Golden, CC. 2-0464 Safety and Hygiene Chain of Custody Record and Analysis Request

Name of Originator: _{VV. D.}	LUCKWOOD Title:	debeslus (Cordinator	Bldg/	Ext:	T441A/3	484 Date: 7-13-9	Y Pag	ge / of /
SAMPLE NUMBER Bldg/Y/M/D/P#/S#	ANALYZE FOR	VOLUME liters	SAMPLE TIME/	MEDIA	P A B	Personal Area Bulk	REMARKS		Lab Number
11219407137301	Abestos				В				
117191107127302	Abestos			· · · · · ·	1				
112 499 07 13 73 03	Ashes tos				1				
112 19467137304	Ashs 65						· · · · · · · · · · · · · · · · · · ·		
112 49407137305	Ashbestos				Ш				
11209407137306					Ш.				
11209407137367					11_				
11249407137308					Ш_				
112 19407137309				· · · · · · · · · · · · · · · · · · ·				 	
112 494 07137310					11_			·····	
112 494 07/373 1/					11				·
11249407137312				·	Ш				
11207407137313					₩_				
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	اسا				<u> </u>	<u></u>		· · · · · · · · · · · · · · · · · · ·	
Relinquished by (Received by	Time/	. 1	Relinqu	ishe	d by	Received by	Time	/Date
(LA)	Well Junh	1521		- ·					<u> </u>
Relinquished by	Received by	Time	Date	Relinqu	ıısne	a by	Received by .	Time	/Date
Relinquished by	Received by	Time/	'Date	Relinqu	iishe	d by	Received by	Time	e/Date
Relinquished by	Received by	Time	'Date	Relinqu	ishe	d by	Received by	Time	/Date
Report and Billing Is	nstruction	·	Analysis	Request			Seal# (Release #) /	17A-	
,			Industrial H		ple		Condition of Seal:		
	Verbal To: N/i						☐ Broken	☐ Unbr	oken
Fax To: <u>IM / NKVS</u>	Standard	Rush	Other			Cianatura			
Report To: 1/1 / INKUS	Service	Ashesto	s Samples			Signature:Comments:		······································	
Bill To: <u>F G + G</u>	F3					Comments.			
P.O.#/Release: 235864	Standard	∐ L 24	_J 2 Other_						
Lab: Kochou		Service		ush					

Rocky Flats Plant Asbestos Containing Material INSPECTION CHECKLIST Appendix 1

1.	Inspector W.O. Lackwood Signature Worder	<u>) </u>	Accreditation # State _CO
	Date		
2	building no.: $T112A$	9.2	ASBESTOS FORM CODE:
	BLDG. AREA CODE:		D 1. Air cell D 6. Pre-formed
	# 1. 184 Figgs 0 6. Crawl Space		D 2 Blanket D 7. Eneot
	Q 2, 2nd Floor Q 7. Roof		D. S. Block D. S. Sprayed On
	🗅 3. 3rd Floor D. B. Exterior of Bldg.		1 4. Cloth 9. Trowsled On D 5. Loose fill 10. Other. Olaced tile
	1 4. 4th Floor 1 9. Plenum		5. Loose fill 10. Other. Dulle W
	D 5. Basement D 10. Other		•
		8.8	COLOR CODE:
3.	ROOM NUMBER:		D B Blue D O Orange
	COLUMN NUMBERS		□ BL Black
	ne darage	•	D ER Brown D Y Yellow
4,	SPECIFIC LOCATION <u>NE CONP</u> R		D G Green D OT Other:
	% FUNCTIONAL SPACE 100070		D GRGray
5.	% FUNCTIONAL SPACE 10010		
_	22	70.	CONSISTENCY:
6.	FUNOTIONAL SPACE LD. 22	WO.	Brittle - hard D Fibrouse - loose D Semi - solid D Granular - pliable
	HOMOGENEOUS AREA LD. OH - FICOR STRUCTO		C Semi - solid C Granular - Pieros
7.	MATERIAL TYPE CATEGORY:	44	CURRENTLY FRIABLE:
7.	D. T. Thermal System Insulation	• • • •	□ Yes ■ No
	D. &. Surfacing Material		
	M Miscellaneous Material	19	CURRENT MATERIAL DAMAGE:
	M Wiscentificate wareness	, 44	1. No Visible Damage (U)
0.4	TSIACM:		Q 2. Damaged (D)
9.1	PIPE LENGTH (FT)		< 10% Localized or
0.3	TSIACM:		< 25% Distributed
ر کده	PIPE DIAMETER (IN.)		D. 3. Significant Damage (S)
	TSI ACM:		10% or more Localized or
لدة	•		25% or more Distributed
	FIPE WITH INSULATION DIAMETER (IN.)		Tale at these biggingens
8 Å	SUFFACING MISC. ACM:	12.1	CAUSE OF DAMAGE:
	TOTAL SURFACE MATERIAL (SQ. FT.)	*	D 1. Area Usage
5.0	900 so.ft.		Q 2. Vibration
0.0	SURFACINGMISC ACM:		Q 3. Air Flow
0,0	DEPTH OF SURFACE MATERIAL (IN.)	•	☐ 4. Water Damage
	114 inch		D. 5. Service Activity
			D & Heust Anima
9.1	FUNCTION CODE:	•	0 7. Other:
0.7	Q 1. Acoustic Insulation Q 19. Exterior Construction		
	Q 2. Baseboard	13.	CONTAMINANT PRESENT:
	☐ 3. Boiler/Furnace insulation ☐ 21. Fire Stop		O. None
	1 4. Czulking Mari 22. Fireproofing insulation		□ 1. Spotty
	D 5. Ceiling Tile D 23. High Temp Water Pipe		1 2. Widely Scattered
	D 6. Chilled Water Pipe D 24. High Temp Water		Q 3. Entire Area
	D 7. Chilled Water Pips Fitting Pips Fitting		
	D 8. Cold Water Pipe D 25. Mastic Adhesive	14.	DISPERSAL FACTOR:
	D 9. Cold Water Pipe Fixing D 26. Roofing	. ••	1. Water 3. Occupant
	D 10. Condensate Pipe D 27. Steam Pipe		2. Air 4. Machinery
	Q 11. Condensate Pipe Fitting Q 28. Steam Pipe Fitting		·
	☐ 12. Cooling Tower Baffles ☐ 29. Tank Insulation	15.	AREA USED BY:
	D 13. Debris/Settled Dust D 30. Transite Board		Maintenance Workers
	Q 14. Domestic Cold Q 31. Vibration Damper		□ Operations Workers
	Water Pipe 32. Wall Board		★ Administrative Personnel
	D 15. Domestic Cold D 33. Wall Insulation		Q Visiting Public
	Water Fitting U 34, Wall Plaster/Spackle		•
	D 18. Door D 35. Other:		
	Q 17. Drain Pipe		
	O 18. Duct Insulation		
	C 101 D201 11100:40011		

•		٠		÷	• •
. 			•		
16. POTENTIAL FOR DAMAGE	•	20.	RECOMMEND	ED RESPONSE A	ACTION:
■ Low Potential for dam			Q 1. Respon		
			Q 2. Respon		
D Potential for damage (O 3. Respon		
☐ Potential for significant	t namada (u)		4. Respon		•
17.1 DISTURBANCE POTENTIAL	•		D 5. Respon		
FREQUENCY OF CONTACT			□ 8. Respon		•
■ 0. Low/Seldom	(< 1 time/month)		D 7. Respon		
W C. FOW/Saldofff	(e.g., Area Rarely Used)		B. Respon		
D 1. Moderate/Occasional			22 11 1 10 0 0 0 11	,,	
U 1. MOOSIZIE/CCCESICIAL	(e.g., Rooms/Offices)	21	DAMAGED W	VENTORY PRIOR	MY
D. O. Ulah/Croomodu	· · · · · · · · · · · · · · · · · · ·	-11	01 02		 ₽3
D 2. High/Frequently	(>4 times/month)		0. 02	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	• •
	(e.g., Hallways/Corridors)	00	PLANNED AC	TR/ITV+	
17.2 DISTURBANCE POTENTIAL		~2.	O New Activ		
			C Nam You	alataraan t	Λ
INFLUENCE OF VIBRATION	i		C Domina	aintenance	H
8 0. Low/None			m Madenoe L	iopan .	
1. Moderate/Noticeable			RenovationDemolition		
	s, vibrating ducts w/o fan, etc.)		C Demontral	,	•
D 2 High/Extreme	tion tellegation dead telling sent	20	OTHER SYSTE	ENO RIDAMEN	
(Exsità seused Albis	tion, vibrating duct W/ián, etc.)	۷۰.			. ^
DISTURBANCE POTENTIAL			System Si		n IA
DIENTIAL FOR AIR EROS			☐ Backup Sy ☐ No Backup		, , , ,
0, Low/None	M. ,				
0 1. Moderate or Noticea	his Mayorea		C RODUNG S)	ystem Maintenar	KAU
			POTENTIAL W	IA PTEA	
(Air shaft, Air stream		24,			
D 2. High/Extreme veloci			Non frieble		
(Wit Lieutotti' Elaastot	Shaft, Fan Room, etc.)		Regulated		
17.4 DISTURBANCE POTENTIAL				al Contaminated	
OVERALL POTENTIAL FOR	DALLACE		□ RCRA Con	taminated	
	The state of the s	00	CHEW NO.		
4 0, Low Potential for Day		23.	SAMPLING:	ALL . 4000 mg	
O 1. Potential for Damage				CM, < 1000 ft.2	
Q 2. Potential for Significa	nu Demage			CM, < 5,000 ft.2	
A DUVOICAL ACCECCACATION	TECODY DIA			CM, > 5,000 fL ²	
8. PHYSICAL ASSESSMENT CA D 1. Damaged or Significan	ntiv Domano (TDI ACI)		□≥9, Non AC		
D 2. Damaged Friable Sur			D 0, Assumed	ACM	
3. Significantly Damage		25.1			
O 4. Damaged or Significan	ntly Democrat Miss. ACM				
D 5. ACBM with Potential	for Damaga	<u> </u>	Sample #	%	Asbestos Type
D 6. ACBM with Potential	for Significant Demaga	L	9	1.8	Chrusotile
D 7. Any remaining Edable	ACBM or Eriable suspect ACBM				
A Executable Column	THE PROPERTY AVEN				
9. HAZARD POTENTIAL CLASS	SEICATION:				
♠ 1. ACBM in good cond		-			
disturbance	minut inten poletion lot	 			
	dition w/potential for damage	<u> </u>			
D 3. ACBM in good con	idition w/potential for signification	n: L	1		
damage	ment and annual lat statistics				
	condition w/low potential for	25.2	LAB REPORT		
disturbance				-	
	condition w/potential for	28.	WORK PACKAG	E NUMBERS	
damaga				····	
D 6. ACBM in Damaged	condition w/potential for			0	
significant dama	go	27.	соимейта: 7	<u>Coupot co</u>	2021
O 7. ACBM in a Significanth			7110		

Rocky Flats Plant Asbestos Containing Material INSPECTION CHECKLIST Appendix 1

1.	Date 7-23-94 Signature Colon December 1	Accreditation # State _CO
2	BUILDING NO.: FIZ-A BLDG. AREA CODE: X. 1. 1st First	9.2 ASSESTOS FORM CODE: D. 1. Air cell 6. Pre-formed D. 2. Blanket D. 7. Sneet D. 3. Block D. 8. Sprayed On D. 4. Cloth D. 9. Troweled On D. 5. Loose fill D. 10. Other:
3.	ROOM NUMBERS Closer	9.8 COLOR CODE: D. B. Blue D. O. Orange D. BL. Black D. W. White D. ER Brown D. Y. Yellow D. G. Green D. O'T. Other:
4.	% FUNCTIONAL SPACE 100%	□ G Green □ OT Other: ■ GRGray
5. 6.	FUNOTIONAL SPACE LD. OS HOMOGENEOUS AREA LD. OS	10. CONSISTENCY: Brittle - hard D Fibrouse - loose D Sami - solid D Granular - pliable
7.	MATERIAL TYPE CATEGORY: D. T. Thermal System Insulation D. 8. Surfacing Material	11. CURRENTLY FRIABLE: D Yes & No
8.2	TSI ACM: PIPE LENGTH (FT) TSI ACM: PIPE DIAMETER (IN.) TSI ACM: PIPE DIAMETER (IN.) TSI ACM: FIPE WITH INSULATION DIAMETER (IN.)	12. CURRENT MATERIAL DAMAGE: 13. No Visible Damage (U) 13. Damaged (D) 14. Localized or 25% Distributed 15. Significant Damage (S) 10% or more Localized or 25% or more Distributed
	SURFACING MISC. ACAL 18 SQ + TOTAL SURFACE MATERIAL (SQ. FT.)	12.1 CAUSE OF DAMAGE: D. 1. Area Usage D. 2. Vibration
8.6	SURFACINGMISC ACM: DEPTH OF SURFACE MATERIAL (IN.)	CI 3. Air Flow CI 4. Water Damage CI 5. Service Activity
9.1	FUNCTION CODE:	6. Usual Aging 7. Other:
	3. Boller/Furnace Insulation Q 21. Fire Stop	13. CONTAMINANT PRESENT: 13. CONTAMINANT PRESENT: 14. Spotty 15. AREA USED BY:
	D 13. Debris/Settled Dust D 14. Domestic Cold Water Pipe D 32. Wall Board	Maintenance Workers O Operations Workers Administrative Personnel
	D 15. Domestic Cold D 33. Wall Insulation Water Fitting D 34. Wall Plaster/Spackle	Q Visiting Public
7	D 18. Door D 35. Other: D 17. Drain Pipe D 18. Duct Insulation	

3				•		
16	POTENTIAL FOR DAMAGE:		20.	RECOMMEN	IDED RESPONSE AC	CTION:
, 0.	Low Potential for dama	ide (L)			onse Action #1	
	D Potential for damage (I				onse Action #2	
	D Potential for significant				inse Action #3	
	C rotalisa iv. oiginii				nse Action #4	
17.	1 DISTURBANCE POTENTIAL	•		D 5. Respo	nse Action #5	
•••	FREQUENCY OF CONTACT/	ACCESSIBILITY:		D 8. Respo	onse Action #6	•
	0. Low/Seldom	(< 1 time/month)		D 7. Respo	nse Action #7	
		(e.g., Area Rarely Used)		🖷 8. Respo	onse Action #8	
	1. Moderate/Occasional					
		(e.g., Rooms/Offices)	21.	DAMAGED I	NVENTORY PRIORI	ſΥ
	2. High/Frequently	(>4 times/month)			2A 🗅 2B 🗷	3
		(e.g., Haliwaya/Comdors)				
			22,	PLANNED A		
17.	2 DISTURBANCE POTENTIAL			O New Act	•	
	INFLUENCE OF VIBRATION:	ar .		8ystem I	•	•
	♠ 0. Low/None			☐ Required		•
	1. Moderate/Noticeable			☐ Renovati	···-	
		, vibrating ducts w/o fan, etc.)		D Demolitic	on .	
	D 2. High/Extreme					A 1 /1A
	(Easily sensed vibrat	ion, vibrating duct w/fan, etc.)	23.		TEMS IMPACTED:	/V <i>/P</i> 4
				D System		•
	DISTURBANCE POTENTIAL	•••		•	ystem in Use	
	"OTENTIAL FOR AIR EROSK	DN:		□ No Back		
	A 0. Low/None	de Maria esta A		O Houting (System Maintenan	20
	1. Moderate or Noticeat			COTTACTOR	1412 0007.	•
	(Air shaft, Air stream		24.	POTENTIAL		•
	2. High/Extreme velocit	·		Non friab		
	(Air Pienum, Elevator	Shaft, Fan Room, etc.)		D. Regulated		
· · ·	DISTURBANCE POTENTIAL				cal Contaminated	
17.4	OVERALL POTENTIAL FOR I	DAMAGE		□ RCRA Co	manxnateo	
			05	SAMPLING:		
	 O. Low Potential for Dans O. 1. Potential for Dansge 	iaga	دع.		ACM = 4000 #2	
	2. Potential for Significan	rt Damana			ACM, < 1000 ft.2 ACM, < 5,000 ft.2	
	CI ZE FORBILISM FOR SIGNIFICAN	it patieta			ACM, > 5,000 fL ²	
18.	PHYSICAL ASSESSMENT CAT	regory:		□ ≥ 9, Non A		
	☐ 1. Damaged or Significan			C O, Assume		
	☐ 2. <u>Damaged</u> Friable Sur			6 0, 200012	io Aom	
	D 3. Significantly Damaged		25.1			
	4. Damaged or Significant			Sample #	1 %	Asbestos Type
	B 5. ACBM with Potential		-	013	2.9	
	D & ACBM with Potential		-	0.5	F	Chrysotile
	7. Any remaining Friable.	ACBM or <u>Friable suspect</u> ACBM	-			
			<u> </u>		·	
	HAZARD POTENTIAL CLASS					
	■ 1. ACBM in good cond	ition whose potential for	L			
	disturbance					
	LI 2 ACBM IN GOOD COND	ition w/potential for damage		··············		
		dition w/potential for significant	<u> </u>			
	damage		25.2	LAB REPORT	т	
		condition w/low potential for	,6		·	
	disturbance 5 ACBM in Domeson a	andition tule as not at the	28.	WORK PACKA	GE NUMBERS	•
	damage	ondition w/potential for	_~.	N	1.	
٠-	G 6. ACBM in Damaged	condition winners to the				 .
•	significant damage	Minutel (Value)	27.	COMMENTS:	Floor Tile	s are
(2 7. ACBM in a Significantly			(n 9000)	Shape. Just	- NED
		ראווואי וצייר אבולופיווטר				

Rocky Flats Plant Asbestos Containing Material INSPECTION CHECKLIST Appendix 1

1.	Inspector W.O. Lackwood Signature Wolanderal	ノ	Accreditation # State _ CO
	Data 7.13.94		
	ELILI DING NO: 112A		
2	BUILDING NO.: 1 4 1+ BLDQ. AREA CODE:	8.2	ASEESTOS FORM CODE: D. 1. Alr cell D. 6. Pre-formed
	● 1. 181 Figur D 6. Crawl Space		D 2. Blanket D 7. Sheat
	Q 2. 2nd Floor Q 7. Roof		D S. Block D S. Sprayed On
	3. 3rd Floor D. 8. Exterior of Bldg.		☐ 4. Cloth ■ 9. Troweled On
	C 4. 4th Floor C 9. Plenum		D 5. Loose fill D 10. Other:
	D 5. Basement D 10. Other		
	Q = 1 = = = = = = = = = = = = = = = = =	9.8	COLOR CODE:
3.			B Blue D O Orange
	COLUMN NUMBERS	• •	DBLBlack DW White DBRBrown DY Yellow
4.	SPECIFIC LOCATION <u>East Bldg.</u> Center		D G Green D OT Other:
7.	<u> </u>		D Gray
5.	% FUNCTIONAL SPACE		·
	10001	10.	CONSISTENCY:
6.	FUNOTIONAL SPACE LD. 10670 HOMOGENEOUS AREA LD. 05		Britie - hard D Fibrouse - loose
	HOMOGENEOUS AREA LD		☐ Semi - solid ☐ Granular - pliable
7.	MATERIAL TYPE CATEGORY:	11.	CURPENTLY FRIABLE
	D T. Thermal System Insulation		☐ Yes · 4 No
	D & Surfacing Material		
	M Miscellaneous Material	12.	CURRENT MATERIAL DAMAGE:
	TSIACM:		1. No Visible Damage (U)
8.1	TSIACM: PIPE LENGTH (FT)		D 2. Damaged (D) < 10% Localized or
82	TSIACM:		< 25% Distributed
· ·	PIPE DIAMETER (IN.)		D. 3. Significant Damage (S)
8.3	TSIACM:		10% or more Localized or
	PIPE WITH INSULATION DIAMETER (IN.)		25% or more Distributed
<u>.</u> .	ALTERNATION AND	404	CAUSE OF DAMAGE:
	· SURFACING MISC. ACAL: TOTAL_SURFACE MATERIAL (SQ. FT.)	12.1	D. 1. Area Usage
0.0	30 50 ft.		Q 2. Vibration
8.8	SURFACINGMISC ACM:		C 3. Air Flow
•••	DEPTH OF SURFACE MATERIAL (IN.)		□ 4. Water Damage
	114 inch		D. S. Service Activity
			D 6. Usual Aging
9.1	FUNCTION CODE:	•	1 7. Other:
	1 1. Acoustic Insulation	40	CONTAMINANT PRESENT:
		13.	■ O. None
	S. Boller/Furnace insulation		1. Spotty
	D 5. Cetting Tile D 23. High Temp Water Pipe		☐ 2. Widely Scattered
	☐ 6. Chilled Water Pipe ☐ 24. High Temp Water		Q 3. Entire Area
	D 7. Chilled Water Pipe Fitting Pipe Fitting		·
	☐ 8. Cold Water Pipe ☐ 25. Mastic Adhesive	14.	DISPERSAL FACTOR:
	D 9. Cold Water Pipe Fixing D 26. Roofing		☐ 1. Water ■ 3. Occupant
	O 10. Condensate Pipe O 27, Steam Pipe		D 2 Air D 4. Machinery
	11. Condensate Pipe Fitting 2 28. Steam Pipe Fitting	45	AREA USED BY:
	☐ 12. Cooling Tower Baffles ☐ 29. Tank insulation ☐ 13. Debris/Settled Dust ☐ 30. Transite Board	13,	Maintenance Workers
	D 14. Departs Cold D 31. Vibration Damper		Operations Workers
	Water Pipe D 32. Wall Board		Administrative Personnel
•	15. Domestic Cold D 33. Wall Insulation		☐ Visiting Public
	Water Fitting Q 34. Wall Plaster/Spadde		-
	□ 18. Door □ 35. Other:		
	Q 17. Drain Pipe		
	D 18. Duet insulation		

		•
•	•	
<i>;</i> }		·
gi.		
16. POTENTIAL FOR DAMA	ΩE∙	20. RECOMMENDED RESPONSE ACTION:
 Low Potential for de 	amage (L)	1. Response Action #1
D Potential for damage	e (M)	0 2. Response Action #2
		Q 3. Response Action #3
☐ Potential for signific	sur ominaña (u)	
		Q 4. Response Action #4
17.1 DISTURBANCE POTENT	TAL .	Q 5. Response Action #5
FREQUENCY OF CONTA		D 8. Response Action #6
		· · · · · · · · · · · · · · · · · · ·
6. Low/Seldom	(< 1 time/month)	☐ 7. Response Action #7
	(e.g., Area Rarely Used)	D 8. Response Action #8
1. Moderate/Occasio		·
C 1. Micobiata Coctac	* · · · · · · · · · · · · · · · · · · ·	
	(e.g., Rooms/Offices)	21. DAMAGED INVENTORY PRIORITY
2. High/Frequently	(>4 times/month)	O 1 O 2A O 2B 🕳 3
	(e.g., Haliways/Corridors)	
	(a.g., riasita) = action of	DO DI SURIED SOTRITIVE DE LE
		22. PLANNED ACTIVITY: \(\)\\/\-
17.2 DISTURBANCE POTENT	IAL -	☐ New Activity/Use
INFLUENCE OF VIBRATK	TAN:	O System Maintenance
# 0. Low/None		Required Repair
1. Moderate/Noticea	ible	Q Renovation
(Motors, loud sou	nds, vibrating ducts w/o fan, etc.)	D Demolition
D 2 High/Extreme		
(Easily sensed vil	bration, vibrating duct w/fan, etc.)	23. OTHER SYSTEMS IMPACTED: 1
		D System Shutdown
DISTURBANCE POTENTI	IAI	•
		Backup System In Use
POTENTIAL FOR AIR ERG	OSKON:	O No Backup/Altemate
🛕 0. Low/None		Routine System Maintenance
☐ 1. Moderate or Notice	eshia Movement	
		AL COTELETIN MANON.
(Air shaft, Air stre	The state of the s	24. POTENTIAL WASTE:
D 2. High/Extreme vel	ocity	Non frieble
(Air Plentin Fleve	tor Shaft, Fan Room, etc.)	D. Regulated ACM
(rai i icilotti, Dava	in onary ran record out	
		Radiological Contaminated
17.4 DISTURBANCE POTENTI	AL.	□ RCRA Contaminated
OVERALL POTENTIAL FO	OR DAMAGE:	
		AE PAICY NA.
0. Low Potential for I		25. SAMPLING:
O.1. Potential for Dama	ପୁ ଡ	≥ 8, Non ACM, < 1000 ft.²
Q 2. Potential for Signif	Icant Damage	□ ≥ 5, Non ACM, < 5,000 ft.2
· · · · · · · · · · · · · · · · · ·		
	n/0	$\square \ge 7$, Non ACM, > 5,000 fL ²
18. PHYSICAL ASSESSMENT		□≥9, Non ACM
D 1. Damaged or Significant	cantly Damaged TSI ACM	Q O, Assumed ACM
☐ 2. Damaged Friable 5		
	ged Friable Surfacing ACM	26.1
4. Damaged or Signification	cantly Damaged Misc. ACM	Sample # % Asbestos Type
O 5. ACEM with Potenti	al for Damage	
	al for Significant Damage	10 1.8 Chrysotile
O & NORW AND LOIGHT	ni lor Siomiicani Damaga	
u /. Any remaining Friat	bia ACBM or Friable suspect ACBM	11 .9 Chrysotile
19. HAZARD POTENTIAL CLA	SCIENCATION	
	andition willow potential for	
disturbance		
D 2 ACRM in good or	ondition w/potential for damage	
D 0 100M In pond	Zilotton Hipotestial for Ositisge	
U 3. ACEM IN GOOD C	condition w/potential for significa	nt
damage	•	
4. ACBM in Damage	d condition w/low potential for	25.2 LAB REPORT
disturbance	a resident autom botoutiat tot	
		AN INDEX DIRECTION OF THE PROPERTY OF THE PROP
	condition w/potential for	28. WORK PACKAGE NUMBERS
damage	-	· · · · · · · · · · · · · · · · · · ·
	condition w/potential for	
C O ACOM BI DAMIZORO	A PANIOTON MADOTEURIST TOL	27. COMMENTS: In Restroom
≢ignificant d≭n		
7. ACBM in a Significant	ntly Damaged condition	need to be notified
- C		if Lincleum 15
724		cemoved.
LOT 1		

Rocky Flats Plant Asbestos Containing Material INSPECTION CHECKLIST Appendix 1 Inspector Wid Lockwood Signature U 4/5194 BUILDING NO .: T-1/2- A 9.2 ASSESTOS FORM CODE: ELDG. AREA CODE: _ ☐ 1. Air cell D 6. Pre-formed B 1. 1st Floor D 6. Crawl Space D 2. Blanket D 7. Sheet D 2 2nd Floor D 7. Roof O 3. Biock □ 8. Sprayed On D 8. Exterior of Blag. D 3. 3rd Floor U 4. Cloth D 9. Troweled On D 4. 4th Floor Q 9. Pienum 5. Loose fill 🛘 10. Other: _ សស D 5. Basement 10. Other 9.3 COLOR CODE: O B Blue ROOM NUMBER: D O Orange COLUMN NUMBERS _ D BL Black D W White D Y Yellow □ BR Brown SPECIFIC LOCATION Company Store ☐ G Green OT Other: D GR Gray % FUNCTIONAL SPACE 10. CONSISTENCY: T-112-A-F-DI FUNCTIONAL SPACE I.D. ☐ Brittle - hard ☐ Fibrouse - loose D Semi - solid D Granular - pliable HOMOGENEOUS AREA I.D. T-11214-11-02 MATERIAL TYPE CATEGORY: 11. CURRENTLY FRIABLE: 1. Thermal System Insulation ☐ Yes **■** No D & Surfacing Material X M Miscellaneous Material 12. CURRENT MATERIAL DAMAGE: ■ 1. No Visible Damage (U) 8.1 TSIACM: 2. Damaged (D) PIPE LENGTH (FT) < 10% Localized or 2 TSLACM: < 25% Distributed PIPE DIAMETER (IN.) 3. Significant Damage (S) TSI ACM: 10% or more Localized or PIPE WITH INSULATION DIAMETER (IN.) 25% or more Distributed SURFACING MISC. ACM: 12.1 CAUSE OF DAMAGE: TOTAL SURFACE MATERIAL (SQ. FT.) D 1. Area Usage 1800 2. Vibration SURFACINGMISC ACM: 3. Air Flow DEPTH OF SURFACE MATERIAL (IN.) Q 4. Water Damage 5. Service Activity 6. Usual Aging 9.1 FUNCTION CODE: 7. Other: D 19. Exterior Construction □ 1. Acoustic Insulation Baseboard D 20. Floor Tile 13. CONTAMINANT PRESENT: 3. Boiler/Furnace Insulation D 21. Fire Stop 0. None D 4. Caulking Mat'l D 22. Fireproofing Insulation ☐ 1. Spotty D 5. Ceiling Tile O 23. High Temp Water Pipe D 2. Widely Scattered □ 6. Chilled Water Pipe D 24. High Temp Water O 3. Entire Area □ 7. Chilled Water Pipe Fitting Pipe Fitting □ 8. Cold Water Pipe 14. DISPERSAL FACTOR: D 25. Mastic Adhesive NA 1. Water Cold Water Pipe Fitting D 26. Roofing D 3. Occupant



5.

Water Pipe 🗲 32. Wali Board D 15. Domestic Cold ☐ 33. Wall Insulation Water Fitting D 34. Wall Plaster/Spackie □ 16. Door D 35. Other: Weed O 17. Drain Pipe

D 11. Condensate Pipe Fitting D 28. Steam Pipe Fitting

D 27. Steam Pipe

D 29. Tank Insulation

O 30. Transite Board

D 31. Vibration Damper

🗅 2. Air

15. AREAUSED BY:

Maintenance Workers

Administrative Personnel

Operations Workers

Visiting Public

D 4. Machinery

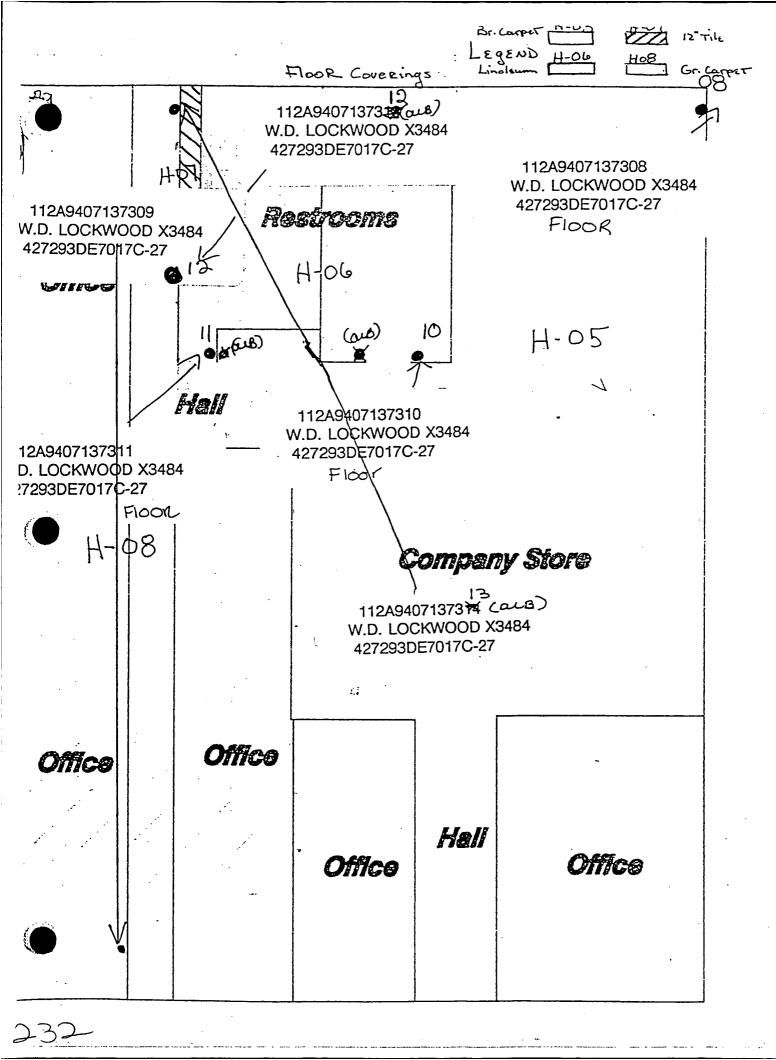
D 10. Condensate Pipe

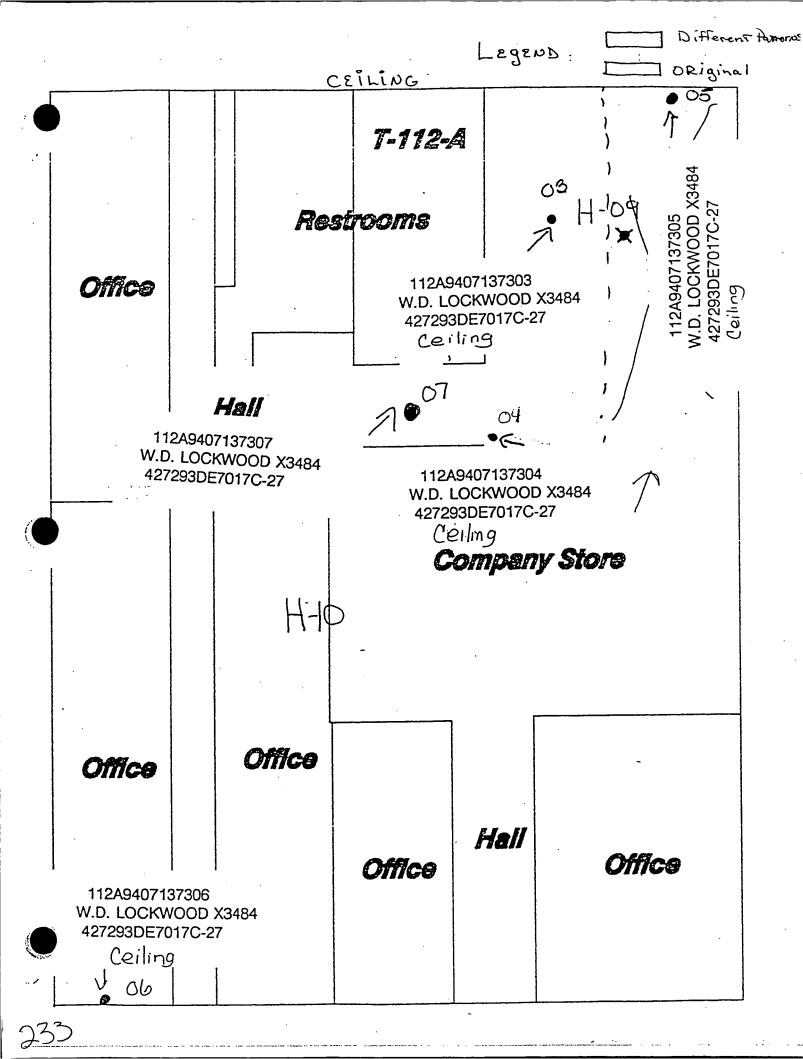
D 14. Domestic Cold

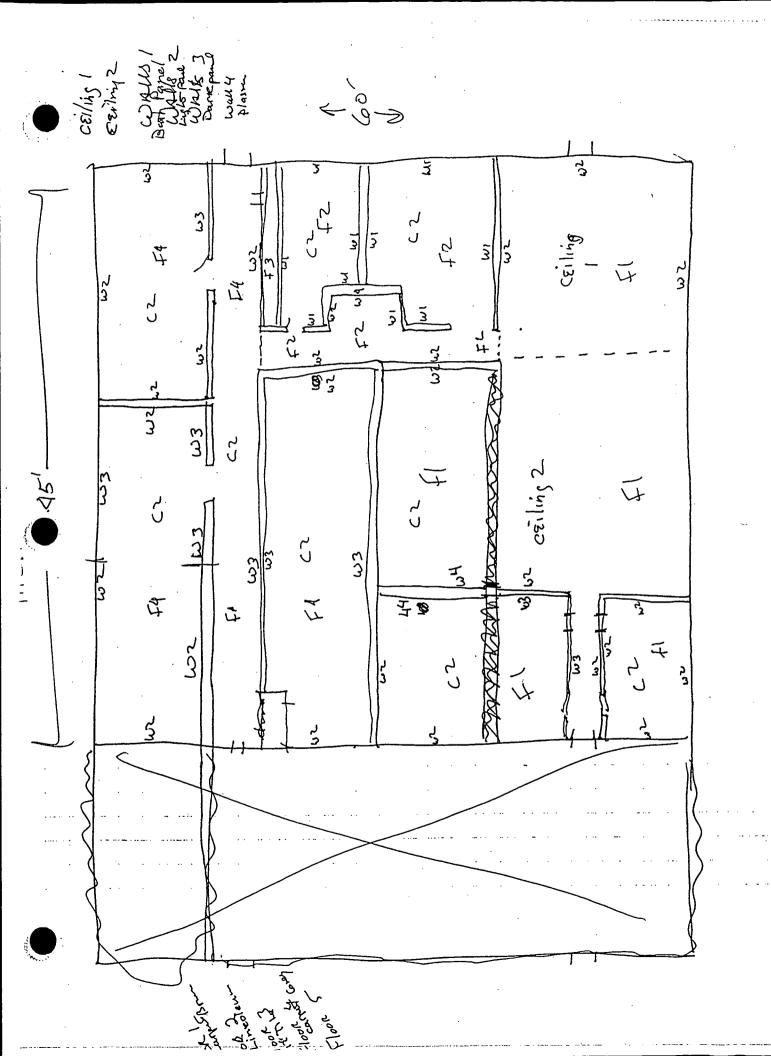
□ 12. Cooling Tower Baffies

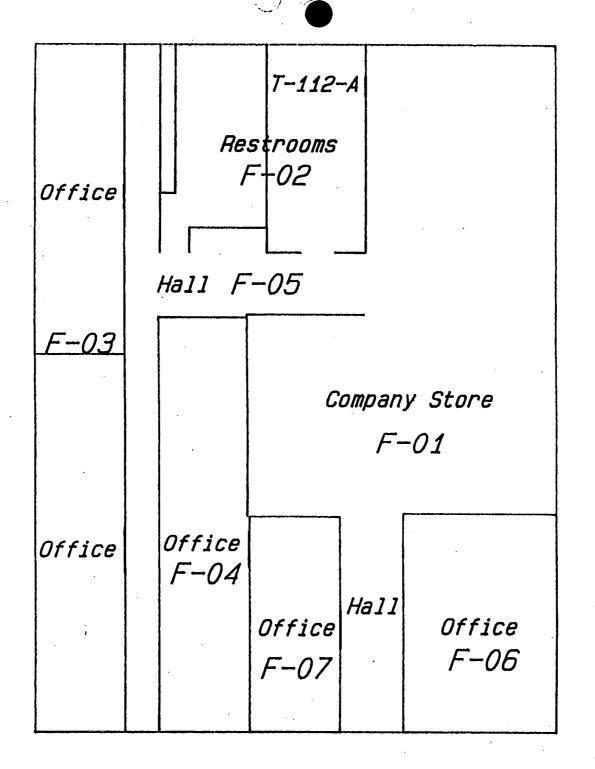
D 13. Debris/Settled Dust

OTENTIAL FOR DAMAGE:		20.	RECOMMEN	DED RESPONSE A	CTION:	•
Low Potential for damage (L)		NA	☐ 1. Respon	nse Action #1		
) Potential for damage (M)		ρι.	2. Respon	nse Action #2		
ial for significant damage	(H)		☐ 3. Respoi	nse Action #3		
			☐ 4. Respon	nse Action #4		
SANCE POTENTIAL				nse Action #5		
RECUENCY OF CONTACT/ACCESSI	ואַוו װיי			ase Action #6		
			· · · · · · · · · · · · · · · · · · ·	ase Action #7	·	
	ime/month)		•	ise Action #8		
	rea Rarely Used)		u a. nespor	ise Action #6		
1 1. Moderate/Occasional (1-4 ti			D 4444 050 B		m/	
	Rooms/Offices)			VENTORY PRIOR	_	
1 2. High/Frequently (>4 tire	nes/month)	NA	01 02	A 0 2B 0	3	
(e.g., H	lallways/Corridors)					
		22.	PLANNED AC	TIVITY:		
DISTURBANCE POTENTIAL		Ja.	□ New Acti	vity/Use	•	
VELUENCE OF VIBRATION:		μ r	□ New Acti	aintenance		
1 0. Low/None	·		☐ Required I	Repair	•	
1 1. Moderate/Noticeable			D Renovation			
(Motors, loud sounds, vibratir	on ducts w/o fan etc.)		□ Demolitio			
•	ig docis wie ian, etc.,			•		
1 2. High/Extreme	asia a dura cultura asa l	22	OTHER EVET	EMS IMPACTED:		
(Easily sensed vibration, vibr	ating duct w/ran, etc.)	23.	Dinensisi	ENS INFACTED.	·	
		MA	☐ System S	กนเออพก		
ISTURBANCE POTENTIAL	•	Ju 1	u backup sy	Stem in Use		
OTENTIAL FOR AIR EROSION:			□ No Backu	p/Alternate		
1 O. Low/None			☐ Routine S	ystem Maintenar	nce	
1 1. Moderate or Noticeable Move	ement					
(Air shaft, Air stream, vent, e	etc.)	24.	POTENTIAL V	VASTE:	•	
2. High/Extreme velocity	•	A	□ Non friable	•		•
(Air Plenum, Elevator Shaft, F	an Room, etc.)	N/V	O Regulated	ACM	•	
(· rememi Zueraner email ·			-	al Contaminated	•	
IST IRBANCE POTENTIAL			D RCRA Cor			
			a nona oo	itatim id too		
POTENTIAL FOR DAMAGE			CALIDI ILIO.			
Potential for Damage		25.	SAMPLING:			
ential for Damage		1/14	U ≥ 3, Non A	ACM, < 1000 ft. ² ACM, < 5,000 ft. ²	•	
1 2 rotential for Significant Dama	ge	₩				
•			□ ≥ 7, Non A	CM, > 5,000 ft.2		
HYSICAL ASSESSMENT CATEGORY:	:		$\square \ge 9$, Non A	CM		, •
1. Damaged or Significantly Dama	aged TSI ACM		0, Assume	d ACM		
2. Damaged Friable Surfacing	ACM		11.			
3. Significantly Damaged Friable		25.1	ج <i>ا</i> لم			
4. Damaged or Significantly Dama			Sample #	%	Asbestos	Type
5. ACBM with Potential for Dam	_	<u> </u>	Sample #	70	ASDESIOS	1 Abe
6. ACBM with Potential for Signi						
					1	•
7. Any remaining Friable ACBM of	Friable suspect ACBM					
		-		 		
AZARD POTENTIAL CLASSIFICATIO						
1. ACBM in good condition w/l	ow potential for					
disturbance	_					
2. ACBM in good condition w/	potential for damage	_				
3. ACBM in good condition w	/potential for significant	L		l	!	
damage						
4. ACBM in Damaged condition	n w/low notential for	25.2	LAB REPORT	<i>N[</i> [A		
disturbance				-		
5. ACBM in <u>Damaged condition</u>	w/notential for	26.	WORK PACKA	SE NUMBERS	<i>.</i>	
damage	- whoreiman ion.			N/	A	
_						
6. ACBM in <u>Damaged condition</u>	II w/potential for	27.	COMMENTS:	(1) and D	nelina	
significant damage		`	Throwal	70-01	- Rixiत	
7. ACBM in a Significantly Damag	ed condition		1		1	
£		•				
		•		 		
The state of the s			 -		`	



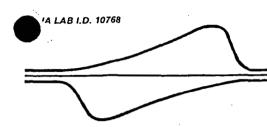






Appendix 8

Historical Inspection Report for T112C



RESERVOIRS ENVIRONMENTAL

SERVICES, INC.

1827 GRANT STREET

DENVER, COLORADO 80203

(800) 678-7374

(303) 830-1986

FAX (303) 863-9196

July 19, 1994

Ms. Julie Linkus EG&G Rocky Flats Plant PO Box 464 Golden, CO 80402-0464

RE: Job No. RES 20769 - 23586JL/148A - Bulk Samples: 112C9407137301, 112C9407137302, 112C9407137303, 112C9407137304, 112C9407137305, 112C9407137306, 112C9407137307, 112C9407137308 and 112C9407137309.

Dear Ms. Linkus:

Reservoirs Environmental Services, Inc. (RES, Inc.) has analyzed nine bulk material samples by Polarized Light Microscopy (PLM) for asbestos content as per your request. The samples were received on July 14, 1994, and initial results were telephoned to your office on July 18, 1994. PLM was used to analyze the bulk materials in compliance with guidelines established by the USEPA (40 CFR Part 763, Subpart F, Appendix A). The Analytical Results are presented in Table I.

RES, Inc. has assigned job number RES 20769 to this study. This report is considered highly confidential and the sole property of EG&G Rocky Flats Plant. RES, Inc. will not discuss any part of this study with personnel other than those of the client company. Samples will be disposed of after sixty days unless longer storage is requested. The US EPA guideline (40 CFR Part 763, Subpart F, Appendix A) was developed for use on friable building materials and is not recommended for non-friable materials such as floor tiles. RES, Inc. recommends additional analyses to confirm negative PLM results on floor tiles.

If you should have any questions about this report, please feel free to call me at 830-1986.

Sincerely,

Robert K. Dickson

Assistant Division Manager

RKD/cma

Analyst(s):

Cheryl A. Dempsey

Greg Behnfeldt

Patrick Coughlan

Paul D. Lo Scalzo Robert L. Gault

RESERVOIRS ENVIRONML... AL SERVICES, INC.

NVLAP Accredited Laboratory #1896

TABLE I. PLM BULK ANALYSIS, PERCENTAGE COMPOSITION BY VOLUME

RES Job Number:

RES 20769

Client:

EG&G Rocky Flats Plant

Client Project:

23586JL/148A

Date Samples Received: Analysis Type:

July 14, 1994 PLM Short Report

Turnaround:

3-5 Day

Client	Lab ID		L	Physical		ASBESTOS CO	NTENT	No	n-Asl						Non-Fibrous
Sample	Number	TOTAL	а	Description	of Total	BY LAYER				pone		(%	•		Components
Number	•	ASBESTOS	У	- · · ·	Sample		l	C	G	S	н	W	T	0	(%)
			е		(%)	Mineral	Visual	E	L A	Y N	A	0	Α	Т Н	
		(%)	'				Estimate	. 1	S	T	R		C	E	
•		(70)					(%)		S	H				R	
112C9407137301	EM 128544	ND	Α	White paint	2		ND	1	· 1	0	0	0	0	0	98
			В	Tan fibrous perlitic material w/tan resinous ma	98 aterial		ND	30	35	0	0	0	0	0	35
112C9407137302	EM 128545	ND	A	White paint	. 1		ND	1	2	0	0	0	0	0	97
			В	Tan fibrous perlitic material	99		ND	25	40	0	0	0	0	0	35
112C9407137303	EM 128546	ND	A	Tan fibrous perlitic	100		ND	30	35	0	0	0	0	0	35
				material w/tan resinous ma	aterial										
112C9407137304	EM 128547	ND	A	White-gray resinous paint	2		ND	5	0	0	0	0	.0	0	95
			В	Tan fibrous material	15		ND	90	0	0	0	0	0	0	10
			C	White fibrous plaster	83		ND	2	8	0	0	0	TR	0	90
112C9407137305	EM 128548	ND	A	5 <i>i</i>	2		ND	5	0	0	0	0	0	0	95
			В	Tan fibrous material	15	}	ND	90	Ó	0	0	0	0	0	10
			C	White fibrous plaster	83	·	ND	2	8	0	0	0	0	0	90
112C9407137306	EM 128549	ND	A	White-gray resinous paint	2		ND	5	0	0	0	0	0	0	95
	•		В	Tan fibrous material	15		ND	90	0	0	0	0	0	0	10
			C	White fibrous plaster	83	1	ND	2	8	0	0	0	0	0	90
						<u> </u>									
ND = None Detected	CELL = Cellulo		_		-	GYP = Gypsum		Analy	st: LV	N/CD					رجا
TR = Trace	Mat = Material	BRUC = B	rucit	Trem-Act = Tremolite-Actinolit	: e	SYNTH = Synthet	tic								Data QA

RESERVOIRS ENVIRONML AL SERVICES, INC.

NVLAP Accredited Laboratory #1896

TABLE I. PLM BULK ANALYSIS, PERCENTAGE COMPOSITION BY VOLUME

RES Job Number:

RES 20769

Client:

EG&G Rocky Flats Plant

Client Project:

23586JL/148A

Date Samples Received:

July 14, 1994 PLM Short Report

Analysis Type: Turnaround:

3-5 Day

Number		TOTAL ASBESTOS	a y e		Portion of Total Sample (%)	BY LAYER		C E	Con G L	npon S Y	ents H A	(%) W O	T A	0 T	Non-Fibrous Components (%)
		(%)	r			Mineral	Visual Estimate (%)	L L	A S S	N T H	I R	L L	C C	H E R	
112C9407137307	EM 128550	ND	A B	Tan & white resin Multicolored fibrous material	10 90		ND ND	2 2	0	93	0	0	0	0.	98 5
112C9407137308	EM 128551	ND	A B	White resin w/white plaster Multicolored fibrous material	15 85		ND ND	5 0	0	TR 90	0	0	0	0	95 10
112C9407137309	EM 128552	ND	A B	Whtie resin w/white plaster Multicolored fibrous material	20 80		ND ND	5	3	2 90	0	0	0	0	90

ND = None Detected
TR = Trace

CELL = Cellulose ORG = ORG Mat = Material BRUC = E

ORG = Organic WOLL = Wollastonite

BRUC = Brucite Trem-Act = Tremolite-Actinolite

SYNTH = Synthetic

Data QA

	0-P#-S#) 07 13 73 0 2 0 single through 07 13 73 09 8 multip		ROCKY FLATS PLANT TRIAL HYGIENE BULK SAME	PLE FORM
2. Process Title:		6. Analytical San	nple Method: +L M	
3. Subprocess Title:		7. Lab Report #:		
4. Building/OU Etc.:	T-112-C	8. Lab Method:		
5. Chain of Custody Sea	1#:	9. Related Forms	:	
10. Sample # (Bldg-Y-M-D-P#-S#)	11. Location Information	12. Material Type	13. Bulk Sample Description	14. Results
11209407137301	Ceiling Comm. Rm., SEcom	misc	Random Sampling	
112094071273 02	Ceiling Middle Office necorner		Random Samplina	
	Ceiling Hallway nw (near Exit)		Random Sampling"	
112094071373 64	Wall- NE Commroom		Random Sampling Grid 2	
1120.9467137305	Wall Bottom corner- Doorway		Random Sampling Geld 2	
	Wall Bortom Corner-Doorwa		Random Sampling Grid &	
	Floor - SW Corner		Random Sampling Geid 3	
112094071373 08			Random Sampling Grid 3	·
11209407137309	Floor	IN/		
15. Sampled by/Date: (Dayne Solwood 7-13-94	16. Checked by/	Date (Check Back of Form):	





EG&G Roc — ats Plant, Inc.
Golden, CO 80402-0464
Safety and Hygiene Chain of Custody Record and Analysis Request

Name of Originator: Philip.	Title:	**		Bldg/l	Ext:	11111	Date: 🍿	Pa	ge / of /
SAMPLE NUMBER Bldg/Y/M/D/P#/S#	ANALYZE FOR	VOLUME liters	SAMPLE TIME/	MEDIA	P A B	Personal Area Bulk	REMARKS		Lab Number
10 1 10 10 11 10 1000									
1. 4 + 1 3-11 - 17 - 12									
3.4								· · · · · · · · · · · · · · · · · · ·	:
1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1									
1120-1211									
(1) (1) (1) (1)									
100000000					$\perp \perp \mid$				
- 519/01/12/3									
					V				·
									
									
		•							
					 		 		
		· ,					· ·		
Relinquished by	Received by	Time/	Date	Relinqui	ished	d by	Received by	Time	/Date
Relinquished by	Received by	Time/	Date	Relinqu	ished	d by	Received by	Time	/Date
Relinquished by	Received by	Time/	Date	Relinqui	ished	d by	Received by	Time	/Date
Relinquished by	Received by	Time	Date	Relinqu	ished	d by	Received by	Time	/Date
Report and Billing Insti	ruction	<u> </u>	. Analysis	Request			Seal# (Release #)	1110	1
				ygiene Samp	ole		Condition of Seal:	-/7/0/	1
Verbal To:				· = . •			☐ Broken	☐ Unbr	oken
Fax Io:		Standard	Rush	Other			Cianatura		
Report To:	····	Service	Ashasta	s Samples			Signature:Comments:		•
Bill To:P.O.#/Release:		Asbestos Samples				, l	Comments.	· · · · · · · · · · · · · · · · · · ·	
P.O.#/Release:	L-1434	Standard	LJ L 24	_ 2					
Lab: Xesoures		Service	Rush Ri	ush					

Rocky Flats Plant Asbestos Containing Material

INSPECTION CHECKUST

Asbestos Found Appendix 1 Inspector W.O. Lackwood Signature Wo Low Date 7/13/94 BUILDING NO.: T112 C 9.2 ASSESTOS FORM CODE: BLDG. AREA CODE: D' 1. Air cell D 6. Pre-formed t. 1st Figgr J 6. Crawi Space D 2. Blanket □ 7. &neo: Q 8. Sprayed On D. S. Block Q 2, 2nd Floor D 7. Roof D 8. D 4. Cloth D 9. Troweled On ☐ 2. 3rd Floor Exterior of Bidg. ロム 4th Floor **Q** 9. Plenum D 5. Loose fill D 10. Other: D 5. Basement D 10. Other 9.3 COLOR CODE: C B Blue D O Orange ROOM NUMBER: D BL Black Q W White COLUMN NUMBERS UY Yellow D BR Brown G Green O OT Other: SPECIFIC LOCATION . D CRGray % FUNCTIONAL SPACE __ 5. 10. CONSISTENCY: D Britile - hard D Fibrouse - loose FUNOTIONAL SPACE LD. D Semi - solid D Granular - pliable HOMOGENEOUS AREA LD. 11. CURRENTLY FRIABLE: MATERIAL TYPE CATEGORY: D Yes ☐ T. Thermal System Insulation D & Surfacing Material 12. CURRENT MATERIAL DAMAGE: O M Miscellaneous Material . D. 1. No Visible Damage (U) D 2. Damaged (D) B.1 TSIACM: < 10% Localized or PIPE LENGTH (FT) < 25% Distributed 8.2 TSIACM: . O 3. Significant Damage (S) PIPE DIAMETER (IN.) 10% or more Lecalized or 8.3 TSIACM: 25% or more Distributed PIPE WITH INSULATION DIAMETER (IN.) 12.1 CAUSE OF DAMAGE: 8.4 · SURFACING MISC. ACME ☐ 1. Area Usace 8.5 TOTAL SURFACE MATERIAL (SQ. FT.) Q 2. Vibration Q 3. Air Flow 8.6 SURFACINGMISC ACM: □ 4. Water Damage DEPTH OF SURFACE MATERIAL (IN.) D 5. Service Activity Q 6. Usual Aging ☐ 7. Other: _ 9.1 FUNCTION CODE: O 1. Acoustic Insulation Q 19. Exterior Construction 19, CONTAMINANT PRESENT: Q 20. Floor Tile 2. Baseboard C 3. Boiler/Furnace insulation C 21. Fire Stop O. None D 22. Fireproofing insulation □ 1. Spotty D 23. High Temp Water Pipe 1 2. Widely Scattered Q 3. Entire Area 24. High Temp Water Pipe Fitting 0 25. Mastic Adhasiva 14. DISPERSAL FACTOR: 1. Water ☐ 3. Occupant Q 4. Machinary C 27, Steam Pipe 0 2 Air O 11. Condensate Pipe Fitting O 28. Steam Pipe Fitting 15. AREA USED BY: Q 12. Cooling Tower Baffles Q 29. Tank Insulation Maintenance Workers D 30. Transite Board 13. Debris/Settled Dust Operations Workers ☐ 31. Vibration Damper ☐ 14. Domestic Cold Q Administrative Personnel D 32. Wall Board Water Pipe Q Visiting Public D 33. Wall Insulation D 15. Domestic Cold 12 34. Wall Plaster/Spackle Water Fitting ☐ 35. Other: _ ☐ 18. Door Q 17. Drain Pipe D 18. Duct Insulation

		•		•
				•
16. POTENTIAL FOR DAMAGE:	20	RECOMMEN	DED RESPONSE AC	TON:
D Low Potential for damage (L)	20.		nse Action #1	1,014
D Potential for damage (M)			nse Action #2	•
D Potential for significant damage (H)			nse Action #3	
: a Lotating by Militalicatic agricals (11)			nse Action #4	•
17.1 DISTURBANCE POTENTIAL		•	nse Action #5	
FREQUENCY OF CONTACT/ACCESSIBILITY:			nse Action #6	•
© 0. Low/Seldom (< 1 time/month)		•	nse Action #7	
(e.g., Area Rarely Used)			rse Action #8	
1. Moderate/Occasional (1-4 times/month)		•		
(e.g., Rooms/Offices)	21.	DAMAGED IN	IVENTORY PRIORIT	Υ
Q 2. High/Frequently (>4 times/month)		01 02		
(e.g., Hallways/Corridors)				
, , , , , , , , , , , , , , , , , , , 	22.	PLANNED AC	CTIVITY:	
17.2 DISTURBANCE POTENTIAL		Q New Acti	vity/Use	
INFLUENCE OF VIBRATION:		Q System M	laintenance	
D O. Low/None		☐ Required		
☐ 1. Moderate/Noticeable		☐ Renovation		•
(Motors, loud sounds, vibrating ducts w/o fan, etc.)		D Demolitio		
D 2 High/Extreme				
(Easily sensed vibration, vibrating duct w/fan, etc.)	23.	OTHER SYST	EMS IMPACTED:	
		☐ System S	hutdown -	•
17.3 DISTURBANCE POTENTIAL		D Backup Sy	retem in Use	
POTENTIAL FOR AIR EROSION:		O No Backu	p/Alternate	
D 0. Low/None		Q Routine S	ystem Maintenanc	9
1. Moderate or Noticeable Movement				
(Air shaft, Air stream, vent, etc.)	24.	POTENTIAL V	VASTE:	
D 2. High/Extreme velocity		D Non friable	-	
(Air Pienum, Elevator Shaft, Fan Room, etc.)		D Regulated		
			al Contaminated	
17.4 DISTURBANCE POTENTIAL		D RCRA Con	taminated	
OVERALL POTENTIAL FOR DAMAGE:				
O O. Low Potential for Damage	-	SAMPLING:		
O 1. Potential for Damage			CM, < 1000 ft.2	
O.2. Potential for Significant Damage			CM, < 5,000 ft.2	
18 PHYSICAL ASSESSMENT CATEGORY:			.CM. > 5,000 ft.2	
		D≥9, Non A		
☐ 1. <u>Damaged or Significantly Damaged</u> TSI ACM ☐ 2. <u>Damaged</u> Friable Surfacing ACM	•	C 0, Assumed	ACM	
☐ 3. Significantly Damaged Friable Surfacing ACM	25.1			
Q 4. Damaged or Significantly Damaged Misc. ACM		la annia i di		
D 5. ACBM with Potential for Damage	5	ample #	%	Asbestos Type
D 6. ACEM with Potential for Significant Damage	ļ			<u></u>
7. Any remaining Friable ACBM or Friable suspect ACBM	L			
	{			
19. HAZARD POTENTIAL CLASSIFICATION:				
Q 1. ACBM in good condition w/low potential for				
disturbance	-			
Q 2 ACBM in good condition w/potential for damage				
Q 3. ACBM in good condition w/potential for significant	ــــا ؛			
damage .		4D DECOR=	•	
D 4. ACBM in <u>Damaged condition</u> w/low potential for	25.2 L	AB REPORT		
disturbance	00 11		or LY ILIDERO	
3 5. ACBM in Damaged condition w/potential for	2\$. V	VORK PACKAG	# いころいけい	
damage	-			
i 6. ACBM in Damaged condition w/potential for	27 ^	ONNENTS.		•
significant damage	21. 0	~mmeN19:_	·	 ,
Q 7. ACBM in a Significantly Damaged condition	_			

Appendix 1

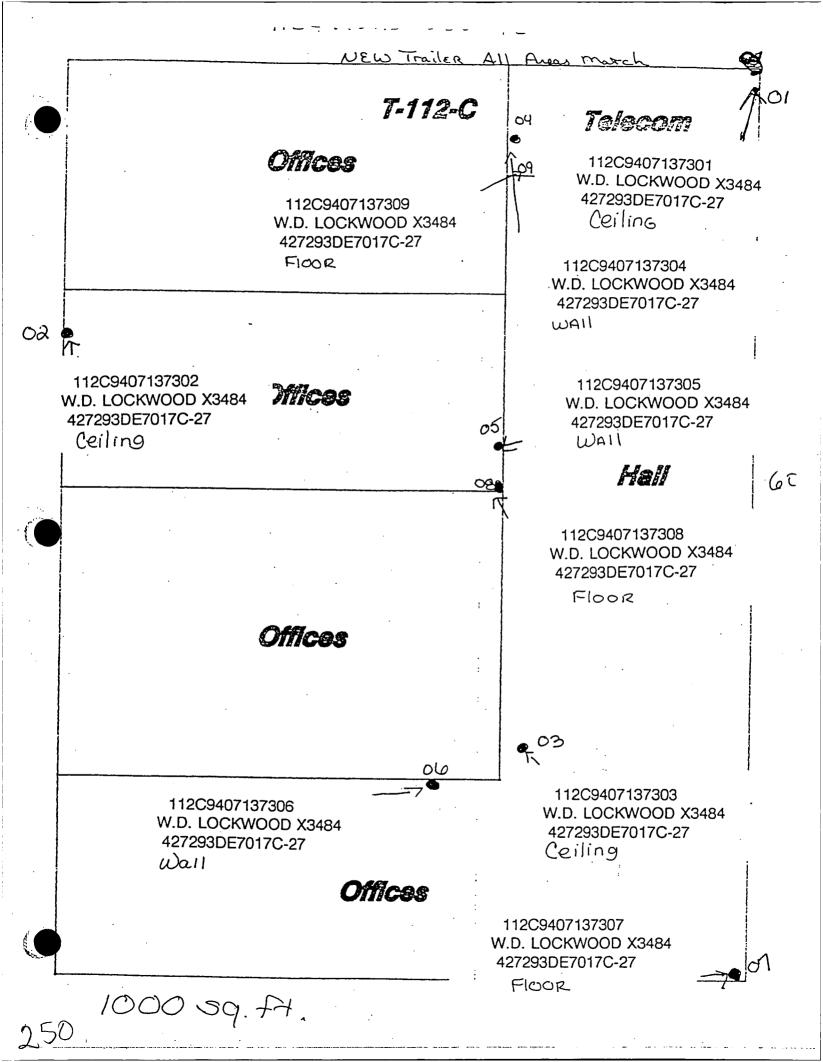
1.	Inspector W.O. Lockwood Signature Worder	Accreditation # State CO
2.	BUILDING NO.: TIZC BLDG. AREA CODE: X 1. 1st Fixor	9.2 ASSESTOS FORIACCOS: 11. Air ceil
3. 4.	ROOM NUMBER: Comm. Porm S E Corner COLUMN NUMBERS	9.3 COLOR CODE: D. B. Blua D. O. Oranga D. St. Black D. W. White D. ER Brown D. Y. Yellow D. G. Green D. OT. Other:
5.	% FUNCTIONAL SPACE 100%	D. GRONNY
	FUNCTIONAL SPACE I.D. 09 HOMOGENEOUS AREA I.D.	10. CONSSTENCY: D Brittle - hard D Fibrouse - loose D Semi - solid D Granular - pliable
7.	MATERIAL TYPE CATEGORY: D. T. Thermal System insulation D. S. Surfacing Material	11. CURRENTLY FRIASLEY D You No
8.2	TSI ACM: PIPE LENGTH (FT) TSI ACM: PIPE DIAMETER (IN.) TSI ACM: PIPE WITH INSULATION DIAMETER (IN.)	12. CLIPPENT MATERIAL DAMAGE: © 1. No Visible Damage (U) © 2. Damaged (D) < 10% Localized or < 25% Distributed © 3. Significant Damage (S) 10% or more Localized or 25% or more Distributed
8.4	SURFACING MISC. ACM:	12.1 CAUSE OF DAMAGE:
	TOTAL SURFACE MATERIAL (SQ. FT.)	Q 1. Area Usage
8.6	SURFACINGMISC ACM: DEPTH OF SURFACE MATERIAL (IN.)	C) 2. Vibration C) 3. Air Flow C) 4. Water Damage C) 5. Service Activity C) 6. Usual Aging
9.1	FLACTION CODE: Q 1. Acoustic Insulation Q 19. Exterior Construction	7. Other:
	Q 2. Baseboard ☐ 20. Floor Tile ☐ 3. Boller/Furnace insulation ☐ 21. Fire Stop ☐ 4. Caulking Mat! ☐ 22. Fireproofling insulation ☐ 5. Ceiling Tile ☐ 23. High Temp Water Pipe ☐ 6. Chilled Water Pipe ☐ 24. High Temp Water ☐ 7. Chilled Water Pipe Fitting Pipe Fitting ☐ 8. Ceid Water Pipe ☐ 25. Mastic Adhesive ☐ 9. Cold Water Pipe Fitting ☐ 26. Roofling ☐ 10. Condensate Pipe ☐ 27. Steam Pipe	13. CONTAMINANT PRESENT: □ 0. None □ 1. Spotty □ 2. Widely Scattered □ 3. Entire Area 14. DISPERSAL FACTOR: □ 1. Water □ 3. Occupant □ 2. Air □ 4. Machinery
	□ 11. Condensate Pipe Fitting □ 12. Cooling Tower Baffles □ 13. Debris/Settled Dust □ 14. Domestic Cold □ Water Pips □ 15. Domestic Cold □ Water Fitting □ 16. Door □ 17. Drain Pipe □ 18. Duct Insulation	15. AREA USED BY: □ Maintenance Workers □ Operations Workers □ Administrative Personnel □ Visiting Public

			•			
16	POTENTIAL FOR DAMAGE:	20.	RECOMMEND	ED RESPONSE ACT	ON:	
, 0.	D Low Potential for damage (L)		O 1. Respon	se Action #1		
	Potential for damage (M)		☐ 2. Respon	sa Action #2		
	Potential for significant damage (H)		G 3. Respon	se Action #3		
	Catation tot Alleniamite amin-ha 1-1		Q 4. Respon	se Action #4		
17.1	DISTURBANCE POTENTIAL		Q 5. Respon	se Action #5		
•••	FREQUENCY OF CONTACTIACCESSIBILITY:		🗅 B. Respon	se Action #6		
	O O. Low/Seldom (< 1 time/month)		☐ 7. Respon	se Action #7		
	(e.g., Area Rarely Used)		🗅 8. Respon	se Action #8		
	1. Moderate/Occasional (1-4 times/month)			•		
	(e.g., Rooms/Offices)	21.	DAMAGED IN	VENTORY PRIORITY	•	
	Q 2. High/Frequently (>4 times/manth)		01 02	A 0,2B 0,3	}	
	(e.g., Haliwaya/Corridors)					
		22.	PLANNED AC			
17.3	DISTURBANCE POTENTIAL		D New Activ			
	INFLUENCE OF VIBRATION:		O System Ma			
	Q. Low/None		Q Required P			
	☐ 1. Moderate/Noticeable		Q Renovatio	= -		
	(Motors, loud sounds, vibrating ducts w/o fan, etc.)		Q Demolition	ו		
	D 2 High/Extrema					
	(Easily sensed vibration, vibrating duct w/ian, etc.)	23.		EMS IMPACTED:		
			System S		•	
17.3	DISTURBANCE POTENTIAL		D Backup Sy			
	POTENTIAL FOR AIR EROSION:		O No Backu	•		
	O, Low/None		U Houtine S	ystem Maintenance	ı	
	1. Moderate or Noticeable Movement	-4	COTTANTAL U	114 CVT.		
	(Air sheft, Air stream, vent, etc.)	24.	POTENTIAL V			
_	2. High/Extreme velocity		D Non friable			
	(Air Pienum, Elevator Shaft, Fan Room, etc.)		D Regulated			
17 /	DICTI IODANIAE POTENTIAI		D RCRA Con	al Contaminated		
17.4	DISTURBANCE POTENTIAL OVERALL POTENTIAL FOR DAMAGE:		U RORA CON	ministed		
	D O. Low Potential for Damage	25	SAMPLING:	•		
	O 1. Potential for Damage	۵.,	• • • • • • • • • • • • • • • • • • • •	CM, < 1000 ft.2		
	2. Potential for Significant Damage			CM, < 5,000 ft.2		
	C 2. Potential for Significant Datings			CM, > 5,000 ft.2		
18.	PHYSICAL ASSESSMENT CATEGORY:		D ≥ 9, Non At			
10,	1. Damaged or Significantly Damaged TSI ACM		© 0, Assumed			
	12 2. Damaged Friable Surfacing ACM			• •••••••		
	Q 3. Significantly Damaged Friable Surfacing ACM	26.1				
	Q 4. Damagad or Significantly Damagad Misc. ACM		Sample #	%	Asbestos	Type
	O 5. ACBM with Potential for Damage	-	Oditipio w		A3003108	The
	O & ACBM with Potential for Significant Damage	}				
	12 7. Any remaining Friable ACBM or Friable suspect ACBM	 				
		—				
18.	HAZARD POTENTIAL CLASSIFICATION:	<u></u>				
	Q 1. ACBM in good condition w/low potential for	<u></u>				
	disturbance					
	Q 2 ACBM in good condition w/potential for damage	\Box				
	 3. ACBM in good condition w/potential for significant damage 	L				
	D 4. ACBM in <u>Damaged condition</u> w/low potential for	25,2	LAB REPORT			
	disturbance				· ·	
	O 5. ACBM in <u>Damaged condition</u> w/potential for	26.	WORK PACKAG	BE NUMBERS		
	damage Dantages continued expotential for					
	O 6. ACBM in Damaged condition w/potential for					
	significant damage	27.	COMMENTS:			
—	☐ 7. ACBM in a Significantly Damaged condition				 .	
	,					_
•						•

Appendix 1

1.	Inspector (W.O. Loc Knood) Signature (LO Conduct)	Accreditation # State
2.	BUILDING NO.: BLDQ. AREA CODE: D 1. 1st Fixor D 6. Craw. Space Q 2. 2nd Floor D 7. Roof D 3. 3nd Floor D 8. Exterior of Bidg. D 4. 4th Floor D 9. Plenum	9.2 ASSESTES FORM CODE: D 1. Air cell D 5. Preformed D 2. Bianket D 7. Shoet D 3. Block D 3. Sprayed On D 4. Cloth D 9. Troweled Cn D 5. Loose fill D 10. Other:
	D 5. Basement D 10. Other ROOM NUMBER: COLUMN NUMBERS SPECIFIC LOCATION % FUNCTIONAL SPACE	9.3 COLOR COCE: D B Blue D O Orange D BL Black D W White D ER Brown D Y Yellow D G Green D OT Other: D GR Gray
6.		10. CONSTENCY: D Britie - hard D Fibrouse - loose D Sami - solid D Granular - pliable
7.	MATERIAL TYPE CATEGORY: T. Thermal System Insulation S. Surfacing Material M. Miscellaneous Material	11. CURRENTLY FRIABLE: D Yes D No 12. CURRENT MATERIAL DAMAGE:
8.2	TSI ACM: PIPE LENGTH (FT) TSI ACM: PIPE DIAMETER (IN.) TSI ACM: PIPE WITH INSULATION DIAMETER (IN.)	 □ 1. No Visible Damage (U) □ 2. Damaged (D) < 10% Localized or < 25% Distributed □ 3. Significant Damage (S) 10% or more Localized or 25% or more Distributed
8.5	SURFACING MISC. ACM: TOTAL SURFACE MATERIAL (SQ. FT.) SURFACING MISC ACM: DEPTH OF SURFACE MATERIAL (IN.)	12.1 CAUSE OF DAMAGE: □ 1. Area Usage □ 2. Vibration □ 3. Air Flow □ 4. Water Damage □ 5. Service Activity
9.1	FUNCTION CODE: 1. Acoustic Insulation	D 6. Usual Aging 17. Other: 13. CONTAMINANT PRESENT: D 0. None D 1. Spotty

40	POTENTIAL FOR DAMAGE:	20	BECOMMEND	ED RESPONSE ACTI	ON:	
10.	D Low Potential for damage (L)	20.	Q 1. Respon		O.W.	
	© Potential for damage (M)	•	2. Respon			
	D Potential for significant damage (H)		O 3. Respon			
	C Lotenmer for significative partiages (Lt.)		Q 4. Respon			:
47.	DISTURBANCE POTENTIAL		© 5. Respon			
17.	FREQUENCY OF CONTACT/ACCESSIBILITY:		B. Respon			
	© 0. Low/Seldom (< 1 time/month)		7. Respon		•	
	(e.g., Area Rarely Used)		B. Respon			
	1. Moderate/Occasional (1-4 times/month)			••••••		
	(e.g., Rooms/Offices)	21.	DAMAGED XV	VENTORY PRIORITY		
	Q 2. High/Frequently (>4 times/month)		01 02		•	
	(e.g., Haliways/Corridors)					
	, 2,	22.	PLANNED AC	πνιτγ:		
17.2	DISTURBANCE POTENTIAL		D New Activ		•	
	INFLUENCE OF VIBRATION:		Q System Ma	•	_	
	D 0. Low/None		O Required F			
	1. Moderate/Noticeable		☐ Renovation			
	(Motors, loud sounds, vibrating ducts w/o fan, etc.)		□ Demolition	1 .		
	© 2 High/Extreme					
	(Easily sensed vibration, vibrating duct w/fan, etc.)	23.	OTHER SYSTE	EMS IMPACTED:		
			☐ System SI	hutdown	•	
17.3	DISTURBANCE POTENTIAL		☐ Backup Sy	stem in Use		
	POTENTIAL FOR AIR EROSION:		O No Backu	p/Altemate		
	O. Low/None		C Routine Sy	ystem Maintenance		
	1. Moderate or Noticeable Movement			•		
	(Air shaft, Air stream, vent, etc.)	24.	POTENTIAL W			
	D 2. High/Extreme velocity		O Non frieble			
	(Air Pienum, Elevator Shaft, Fan Room, etc.)		☐ Regulated			
	Diam (ABA) AR market			al Contaminated		•
17.4	DISTURBANCE POTENTIAL		RCRA Con	taminated		
	OVERALL POTENTIAL FOR DAMAGE:				•	
	O 0. Low Potential for Damage	25.	SAMPLING:			
	O 1. Potential for Damage			CM, < 1000 ft.2		
	Q 2. Potential for Significant Damage			CM, < 5,000 ft.2		
	DIRIONAL ADODDOS PART ALTRODOS.			CM, > 5,000 ft.2		
10.	PHYSICAL ASSESSMENT CATEGORY:		D≥9, Non At			
	☐ 1. Damaged or Significantly Demaged TSI ACM ☐ 2. Damaged Friable Surfacing ACM		C 0, Assumed	S ACM		
	☐ 3. Significantly Damaged Friable Surfacing ACM	05.4				
	O 4. Damaged or Significantly Damaged Misc. ACM	25.1				
	D 5. ACBM with Potential for Damage	<u></u>	Sample #	- %	Asbestos	Туре
	O 6. ACBM with Potential for Significant Damage	L_				
	☐ 7. Any remaining Friable ACBM or Friable suspect ACBM		·			
		Ĺ.				
19.	HAZARD POTENTIAL CLASSIFICATION:					
	Q 1. ACSM in good condition w/low potential for					
	disturbance					
	2 ACBM in good condition w/potential for damage	-	· · · · · · · · · · · · · · · · · · ·			
	D 3. ACBM in good condition w/potential for significant					
	damage	25.2	I AR REPORT		•	
	4. ACBM in <u>Damaged condition</u> w/low potential for	23,6	DAD NEI ON!			
	disturbance	26	WORK PACKAC	REAK IMBERG		
	O 5. ACBM in <u>Damaged condition</u> w/potential for damage	 .			•	
	O 6. ACBM in Damaged condition w/potential for					
	significant damage	27.	COMMENTS:			
	1 7. ACBM in a Significantly Damaged condition					
	· · · · · · · · · · · · · · · · · · ·					



Appendix 9

RLC Inspection Report for T112A

ASBESTOS INSPECTION REPORT

BUILDING T112APU&D YARD

September 27, 1999

Prepared for:

Paul Wojtaszek

Rocky Mountain Remediation Services

Prepared by:

Commodore Advanced Sciences, Inc.

143 Union Blvd., Ste. 660 Lakewood, CO 80228 RFETS: T891V; x-6508

COMMODORE

ADVANCED SCIENCES, INC.

Jen Wingard

Sampling Technician jen.wingard@rfets.gov

RFETS, Bldg #T891V P.O. Box 464 Golden, CO 80402-0464 Phone: (303) 966-6508 Fax: (303) 966-3308 Pager: (303) 212-3184

143 Union Blvd., Ste. 660 Lakewood, CO 80228 Phone: (303) 980-0036 Fax (303) 980-1206

1.0 SUMMARY

An asbestos inspection of trailer T112A was conducted by Commodore Advanced Sciences at Rocky Flats Environmental Technology Site (RFETS) on September 27, 1999. Inspection and sampling was conducted for Paul Wojtaszek to determine the trailer's asbestos quantities for demolition and future disposal in a landfill.

2.0 SCOPE

Commodore Advanced Sciences was responsible for visual inspection of specified areas to identify asbestos-containing material (ACM); bulk sampling of suspect materials and transport of samples to an accredited lab for analysis by Polarized Light Microscopy (PLM).

3.0 PROCEDURE

Inspection and sampling were performed by Jen Wingard, a licensed Asbestos Inspector certified by the State of Colorado and the Environmental Protection Agency. All work was completed per 40 CFR 763.86, 5 CCR 1000-10, RFETS Asbestos Characterization Procedure (PRO-563-ACPR), and CAS Sampling for Waste Characterization (CAS SOP-003). Michelle Hershey acted as witness and spotter as needed.

Bulk samples were delivered to CAS trailer T891R for shipment to the accredited lab Reservoirs Environmental Inc.

4.0 RESULTS

Building T112A is a five-wide trailer previously used for administrative offices and currently abandoned and located in the PU&D yard awaiting disposal. It is a wood and metal structure that contains multiple office-type rooms and two restrooms. The inside walls consisted of wood paneling with two "newer" drywall walls that had no surface coverings or taped joints. No samples were collected.

The floors consisted of carpet and tile. A different contractor previously sampled ceiling tile and floor tile on 4/21/99. Both contained no asbestos components. The tile mastic was found to contain 70% Chrysotile. On 9/27/99 CAS made the assumption that the cove base cement used in both bathrooms is also non-friable asbestos-containing material. No samples were collected.

Air ducts and waterlines were not individually insulated and had only the existing loose fiberglass insulation around them. Electrical lines and panels were also free of any potential ACM. No samples were collected.

One roof sample was collected which consisted of four layers. There was a gray putty-like material, which appeared to be used to hold the five sections of the trailer together. The actual roofing material consisted of two layers of brown resinous material on top of a very thin layer of silver paint or paper. Reservoirs Environmental Inc. which analyzed the samples found the putty to contain 15% Chrysotile, the silver paint 4% Chrysotile and the remainder free of asbestos. All materials were non-friable.

Inspection Summary Table:

Potential ACBM	Locations	Conclusion
Surfacing Material	None detected	N/A
Thermal System Insulation	None detected	N/A
Miscellaneous	Tile mastic; non-friable Cove base cement; non-friable Roofing, non-friable:	70% Chrysotile; 4/21/99 Assumed; 9/27/99
	Putty/plaster Resinous material Silver paint	15% Chrysotile; 9/27/99 N/A 4% Chrysotile; 9/27/99

5.0 ATTACHMENTS

Chain-of-custody for sample 99Z0382-001.001 (T112A9909270101)
Analytical data from Reservoirs Environmental Services, Inc.
Asbestos Sampling Data Sheet
Asbestos Containing Material Inventory Worksheet
Field worksheet

RESERVOIRS ENVIRONMENTAL SERVICES, INC.

NVLAP Accredited Laboratory #1896

Page 1 of 1

HE

FAX

863 9106

TABLE I. PLM BULK ANALYSIS, PERCENTAGE COMPOSITION BY VOLUME

RES Job Number:

REB 63457-1

Client

Kaisar-Hilt Analytical Services Division

Client Project:

9920382, J. Wingard

Data Samples Received:

TR = Trace. < 1% Visual Estimate

September 27, 1999 PLM Short Report, Bulk

Trem-Act = Tramolite-Actinolite

Note: The US EPA requires use of stratified analysis for NESHAP and AHERA compliance. Composite results only apply for specific exceptions.

SYNTH = Synthetic

Analysis Type: Turnaround:

2 Hour

ASBESTOS CONTENT Physical Portion Non-Ashestos Fibrous Clent Lab ID Non-Florous of Total Number Description Components (%) Components Sample 8 Semple BY LAYER T (%) Y Number (%) ø Т Mineral Vicual н Estimete s 1961 S 3 C)wysotile 0 EM 435244 A Silver paint ٥ 0 96 9920382-001 Brown resinous materal 17 ND 0 0 0 0 0 0 0 100 SERY 80 C Gray plaster Chrysotile 15 O O 0 Ω a Ω 85 GYP = Gypsum WOLL - Wolfestonite CELL = Celulous ORG = Organic Analyse PDL NO se None Detected

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RUN 99Z0382	82			Sar	apilag Origin				Purchase Order/Charge Code 15010420			
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POSSIBLE SAN	POSSIBLE SAMPLE HAZARDS/REMARKS	NEARKS				8	ECIAL INS	SPECIAL INSTRUCTIONS He	Hold Time	Total Activity Exemption:	l	Yes. J No L
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Bottle No.	Customer	Matrix	Date	The	Location	North	No/Type Container		Sample Analysis	įįs		Preservative; Pacidag
99Z0382- 001.001	T1129092701011	Ξ			T112A	1-NA N/A	¥,	IH02B004 (Asbestos - bulk (PLM) off-site) [Rush]	os - buľk (PLM)	off-site) [Rush]		N/A Nane
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DISPOSITI	Š											

Asbestos Containing Material Inventory Worksheet

Building Number 11124 Room Number Pipe insulation:	NA Date 4/2/49
Type: NO ACM; FIBERGLASS	ONU Linear/sq. ft. Fitting count:
Type:	Linear/sq. ft Fitting count:
Туре:	Linear/sq. ft Fitting count:
Туре:	Linear/sq. ft Fitting count:
Duct insulation:	
Type: NO ACM; FIBERGLASS ONLL Duct Size	app Sq. ft
Type:Duct Size/s	app Sq. ft
Type:Duct Size/s	app Sq. ft
Type:Duct Size/	app Sq. ft
Other:	
SURFACE INVENTORY:	
Location: No ACM Description:	Sq. ft
Location:Description:	
Location:Description:	Sq. ft.
Location:Description:	Sq. ft
MISCELLANEOUS INVENTORY:	
Location: Bathrooms Description: Cove los	
Location: Hoor Tile Description: Tile 1	nastic sq. ft.
Location: Roof Description: Gray	putty-like cement sq. ft.
Location: Roof Description: Silver	paint paper sq. ft.
PREPARED BY JEW WINGARD	DATE 9/27/19
SIGNATURE ju wingard	·

FIE LD ASI SAMPLE REQUEST WORKSHEET

RIN: 9920382	WASTE STREAM ID:NA
EVENT: CO	CUSTOMER SAMPLE ID:
DUPLICATE ID: NA	FIELD BLANK ID:
ISSUE DATE: <u>092799</u>	EQUIPMENT BLANK ID:
	TRIP BLANK:
ν ,	ons at point 'FIZ' labeled in tape.
Other ID: T11299 09270. Sample Appearance: green of silver paper on form	
Sampling Device: Chisel, Meters	ple Time: 1338 Rad Screen Sample Date: 188
Was generator notified to receive exces Sampler's Signature:	,

250

1.mc 08/10/98

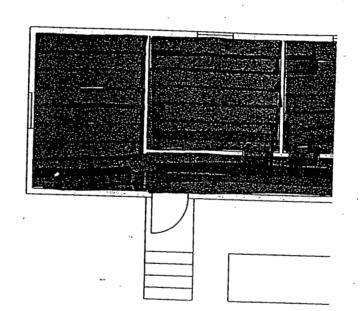
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Asbestos	Sam	nlina	Data	Sheet
7.000000	Juin	$\rho \dots g$	Dutu	011000

	Asbestos Sampling Data Sheet	•
Job# 992639	Name JEN WINGARD Da	ate <u>9/27/9</u> 9
General Description	of building/area: BLDG TIIZA IN PURD YARD	(TRAILER)
Sample Number	Sample Description and Location	
T112A9909270101	ROOFING MATERIALS: GRAY PUTTY FROM &	ETWEEN
· · · · · · · · · · · · · · · · · · ·	TRAILER SECTIONS; ROOF RESINOUS CON	
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PREPARED BY JE	N WINGARD DATE 9/27/99	

SIGNATURE

260/260

ROCKY FLATS ENVIRONMENTATECHNOLOGY SITE T-112C



HOMOGENEOUS LEGEND

Ceiling